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ABSTRACT

This curriculum guide describes the instructional program at the Ada H. H. Lewis Middle School in Philadelphia, Pennsylvania. In brief, the goals of the program are to provide the schools' fifth-grade through eighth-grade students with educational opportunities based on an eclectic team-teaching approach. Four separate "houses" accommodate students from all grade levels in an open classroom structure. Specifically, the guide discusses the school's philosophy, goals, team structure, conversion scale for student ranking, rosters and schedules, alternative program, and special-education facilities. Curriculum development is outlined in the following areas: reading, communications, science, mathematics, social studies, Latin, typing, art, visual communications, industrial arts and materials, home economics, music, and health and physical education. (KS)

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ADA H. H. LEWIS MIDDLE SCHOOL

CURRICULUM GUIDE

1975

Albert Jackson, Principal

Dorothy S. Rush
Vice Principal

Vaughn L. Williams
Vice Principal

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OVERVIEW

A significant event in the history of the School District of Philadelphia occurred in September, 1973 when the Ada H. H. Lewis Middle School opened its doors to admit students. Beautiful in design and structure, the school is named after a former school board member, an ardent supporter of public education in Philadelphia.

The school is located on the historically significant Awbury-Nolan complex where East Germantown and East Mount Airy meet. The setting is breathtakingly beautiful and unusual due to its suburban ambience in a heavily populated urban area. On the western and eastern sides of the tract are scenic wooded areas where many species of the plant and animal kingdom abound. Immediately surrounding the school are wooded private estates, single homes, twin homes, apartment buildings and row homes. Sharing the complex are Awbury Recreation Center, Stenton Child Center and Germantown-King campus No. I. The community population and student population range from disadvantaged to upper middle class economically and socially. In addition to students from private homes, students are enrolled from the Stenton Center and Children's Aid Society residences, Sandy House and Loeb House.

A variety of backgrounds is represented in the school community from which our students emerge and the multifaceted components reveal that the academic needs of our students are many and complex. We are aware that the middle school encompasses that period of a pupil's life when great personal development is taking place. There is a need for the educational climate to cultivate, nurture, and provide many exploratory experiences to aid the student in determining and acquiring a set of values which will provide a background for future living patterns.

To establish the best atmosphere for the learning process in addition to maintaining an educationally sound program, Eclectic Team Teaching using the open classroom concept is the basic student organization in operation at Ada H. H. Lewis Middle School. The school is physically and administratively organized on the House Plan. There are four houses, Blue, Orange, Green and Tan which accommodate students on a vertical house structure. Each house has all grades, but no team has more than one grade, with the exception of the single unit Alternative Class.

PHILOSOPHY

The chronological, mental and social ages of middle school students suggest a learning environment that provides for the special qualities and needs of this period of development.

The Ada H. H. Lewis Middle School program is designed to educate the whole child academically, socially and emotionally by providing for individual differences and by inculcating in the child the highest educational standards possible.

Constant interaction among pupils, teachers and community will result in a curriculum design that will provide for the smooth transition of students, approximate ages ten to fourteen, from lower to upper schools. This interaction will affect desirable changes in student behavior. These behaviors are grouped into the following categories: knowledge, study skills, thinking processes, self-direction, social effectiveness and human values. In addition, emphasis will be on continued improvement and utilization of fundamental skills and on providing a variety of experiences to prepare the student for a more specialized curriculum in high school.

Teachers must cooperate and work together to coordinate learning experiences whenever possible. Various team approaches will necessitate staff development, which has been provided previously to improve constantly and to upgrade the quality of teaching in the Ada H. H. Lewis Middle School.

Success in creating this new model is wholly dependent upon creative involvement and cooperation of administrators, teachers, parents, students and community resources.

GOALS

1. To orient students, faculty, staff, parents and community to the Ada H. H. Lewis Middle School concept and philosophy and to have them assist in improving the educational program.

2. To provide high-interest, multi-level educational materials to meet the diverse interests and needs of the students.

3. To evaluate periodically pupil needs and concerns and to adjust curriculum or instruction when necessary.

4. To establish reciprocal relations with Awbury Recreation Center and Germantown-Martin Luther King High School Campus No. I in utilizing physical facilities, materials and personnel whenever feasible.

5. To initiate an open-ended career development program correlated with similar programs in upper schools.

6. To place emphasis on learning rather than on teaching.

7. To help students establish attitudes and values that will help them to become self-directing, self-sustaining, responsible members of our society.

8. To develop an organization that utilizes the professional competencies of teachers to the utmost through cooperative team-teaching procedures.

TEAM STRUCTURE

The middle school concept covers grades five through eight. These school years are distinctively different from any other, and the child is changing more rapidly physically, emotionally, and socially than at any other period of his life. Adjustments to school and society and developing positive attitudes and fostering ambitions dictate that students be provided alternatives to accommodate their learning styles. The concept of a quad-team, mini-team, or single-unit team is the vehicle chosen at Lewis to provide flexibility for students' needs in the skill subjects. Careful consideration has been given to the selection of students for each team. Each student's school history and pupil personnel record have been examined to provide a basis for assignment.

All Expressive Arts subjects have been combined to form the Expressive Arts team, which provides opportunities for students to gain skills in related areas. The middle school should provide innumerable exploratory experiences that students can use as bases for determining curricula and career choices as these students progress through the school years.

QUAD-TEAMS - 140 STUDENTS, 4 TEACHERS - Sixty-six percent of the population

I. COMPOSITION - Entire house minus these students:

top 10%) 90th percentile
middle 13%)
lower 10%) 11th percentile

A. Rank will be determined by a conversion scale based on Iowa tests, report card marks and relevant additional input.

B. Team Placement (mini or quad) determined by teacher or counselor recommendation and/or social development. Parents' desires will be considered in team placement.

II. RATIONALE

A. Closer ability groupings for instruction.
B. Specialist teachers.
C. Greater opportunity for teachers to assist and learn from one another.
D. Instructional time saved through large group presentations.

MINI-TEAMS - 70 STUDENTS, 2 TEACHERS - Thirty-three percent of the population

I. COMPOSITION - Following groups of students:

top 30%) 90-99 percentile
middle 40%)
lower 30%) 1-10 percentile

A. Rank will be determined by a conversion scale based on Iowa tests, report card marks and relevant additional inputs.

B. Team Placement (mini or quad) determined by teacher or counselor recommendation and/or social development. Parents' desires will be considered in team placement.

II. RATIONALE

A. Top 30% will have time, space and opportunity for independent study.
B. Children will relate to fewer adults, get to know teachers better, and have opportunity for better adjustment.
C. Less time spent traveling between classes.
D. Teachers will relate to fewer children, know them better.
E. Focus on individualization.
F. More open in concept than quads.
G. Greater flexibility than quads.
H. Unified thrust and/or possibility of inter-relating academic disciplines. (Math-Science or Social Studies communications)
I. Provide half-way placement for Special Education pupils.

SINGLE-UNIT TEAMS - 35 STUDENTS, 1 TEACHER

I. COMPOSITION

top 30%)	91-100 percentile
middle 40%)	11-90 percentile
lower 30%)	1-10 percentile

A. Rank will be determined by a conversion scale based on Iowa tests, report card marks and relevant additional inputs.

B. Team Placement - single determined by teacher or counselor recommendation and/or social development. Parents' desires to be considered also.

II. RATIONALE

A. Top 30% will have time, space and opportunity for independent study.
B. Pupils will have maximum opportunity within this organizational structure for intensive pupil-teacher communication on a one-to-one basis.
C. Additional time gained in minimizing pupil movement.
D. Provides an easily identifiable home-base for children.
E. Open-ended opportunity for arranging for instruction.
F. Focus on individualization.
G. Placement for teachers who work better individually.
H. Maximum opportunity for social and instructional accommodation for Special Education pupils.

CONVERSION SCALE COMPONENTS FOR STUDENT RANKING

A. RATIONALE

Because we believe we need several items to make an accurate judgment about student placement in our quad-mini-single team organization, the Lewis Team has decided on a flexible plan for ranking students which would bring about maximum learning for all our students.

B. COMPONENTS

1. From each student's Iowa (*) profile, use the stanine for the composite score (stanine = 1 - 9)
   If the composite stanine is unavailable, use all the stanines from any of the major batteries available.

   a. Vocabulary
   b. Reading
   c. Total Language
   d. Total Work-Study
   e. Total Arithmetic

   This average would be comparable to a composite stanine.

2. Use eight grades from the progress report to find an average for each student.

   a. Five grades from the skill areas: Reading, Arithmetic, Written Expression, Science, Social Studies.

   b. The best three grades from the expressive arts areas: Music, Health Education, Physical Education, Art.

3. Teacher Evaluation

C. APPLICATION

The three components would be used to determine whether a student is placed in a quad, mini, or single team initially.

1. Iowa * Composite Stanine
2. Progress Report Average
3. Teacher Evaluation

At the conclusion of the school year 1973-1974, the Iowa profile will be replaced by the California Achievement Test Profile. The School District will administer the CAT initially in April-May, 1974.

However, before final placement is decided, other factors may be considered:

1. Personal attributes
2. Student interests
3. Leadership strengths
4. Parental evaluation or request
5. Community activities
6. School-related activities and responsibilities
7. Citizenship and work habits

ROSTER AND SCHEDULE

Student profiles have been compiled and are on file in the Organization Director's office which ultimately had the responsibility of leading the Roster and Scheduling Committee into developing a roster to accommodate the student body. A master roster was devised based on modular scheduling with nineteen modules. Expressive Arts areas and modules were assigned to the teams. Expressive Arts offered are Art, Graphics and Visual Communications, Industrial Materials, Physical and Health Education, Vocal and Instrumental Music, Typing, and Home Economics. In addition to these areas, Latin, as an exploratory language for fifth graders, has joined the Expressive Arts team. Two lunch modules consisting of forty minutes each were designated. With these fixed components extracted the remaining school day is left to the teacher team members to determine when and how long the skill subjects of communications, social studies, science and mathematics will be taught. Reading instruction for every pupil on every team must be at least one hour per day. A supplementary offering of Human Growth and Development is also available to many of the classes in each grade.

ALTERNATIVE PROGRAM

The Alternative Class is a unique venture in the Lewis School. It is designed to house a maximum of twenty-five students, grades 5, 6, 7, and 8, who have had little success academically even though indications from teacher evaluations, local and national achievements tests, and parental information show that the students have average ability. This class is funded through the Alternative Programs office and was established as a result of a proposal being written and accepted in the spring of 1973.

The class has the services of a classroom teacher, three part-time adult learning partners, a counselor, and a team of mental health consultants. These professionals, with the assistance of school administrators, form the Alternative Program team, diagnose, plan, and implement instructional and supportive activities for the students. Due to the unusual student-adult ratio in the class, the program provides individualized instruction and counseling to the students.

The chief goal of this program is to provide a happy, successful school experience which would stimulate learning to the point that skills can be gained to assure each child of attaining grade level mastery in the basic skill areas. The students are also rostered into the Expressive Arts areas as are other students at Lewis. Students have the opportunity of taking many educational trips and participating in career-oriented activities. When students have achieved this major goal, along with other desired social and emotional strengths, they may voluntarily enter or be recommended to enter an existing eclectic team at Lewis.

Students involved in the program either opted to enter or were recommended by parents, teachers and other school personnel. There is a weekly meeting each Friday morning from 9:15 a.m. to 10:30 a.m. to discuss the progress and problems students and staff are experiencing. The mental health consultants conduct group meetings with the students on Monday and Tuesday of each week and once weekly with parents of students in the class.

School District support and evaluation are provided from the Alternative Programs Office and the Research and Evaluation Division.

SPECIAL EDUCATION

Included in our organizational structure of class assignment are two Special Education classes of retarded educable children. These students come either from the Lewis boundaries or are assigned to us by the District Six office. Both are single-unit classes with skill subjects taught by the advisory teacher. However, both classes have formed alliances with existing teams in their respective houses to implement instruction particularly in the reading and mathematics areas. Expressive Arts subjects are assigned to all students from the master roster. The Special Education students are merged with students from other classes instead of moving as separate entities. This gives all students greater exposure to each other and eliminates the stigma, isolation, and frustration often experienced by pupils in Special Education.

CURRICULUM DEVELOPMENT

One of the disturbing problems faced by practically every school and every school district is the lack of articulation within a grade, within a school, between schools and throughout a school district. One concern in the middle school is that there must be knowledge of the skills and subject matter offered and mastered in the lower school in addition to those skills and subject matter offerings required in the high school. This information must be known so that the school can realistically provide a program based on the pupils' needs while eliminating frustration, fear of school, and negative attitudes. We do intend to create and support a viable system which engenders a desire for learning that can be implemented through teachers meeting students with warmth, understanding, and skill. Lewis staff members have engaged themselves industriously in making these determinations.

READING

I. GENERAL DESCRIPTION

A. Staff

The school plans to have four reading specialists, along with paraprofessional and volunteer reading aides, to work with teachers and students in the houses. Each base teacher will be a teacher of reading as a developmental process, and will be responsible for instruction in his or her content area, making it more responsive to individual needs.

Expressive arts teachers i.e. industrial arts, home economics, business, music, physical education, foreign language and art, will not teach reading as a developmental process but will be responsible for teaching study skills applicable to their particular areas.

I. M. C. personnel will assist in carrying out the objectives of the reading program by acquainting pupils and staff with available print, nonprint and production materials and encouraging wide use of the facility on individual as well as group bases.

B. Rationale

The Reading Process is the basic skill on which competency in other disciplines is dependent. Since all content area teachers use printed materials as a basic part of their instructional program, they must assume the obligation of teaching students to read through a well-planned systematic approach.

Because it is recognized that children learn differently and that no one has yet designed the one set or package of materials that will fit all children, a basal will be used as the core of the developmental program with a supplement of multi-media/multi-level materials to meet the diverse needs of the students.

II. GOALS

A. To measure periodically each student's competency in language abilities to ascertain his needs and chart his progress.

B. To increase each teacher's capability in teaching the skills of reading in a developmental reading program and in his own subject area.

1. Staff development
2. On-the-spot assistance

C. To provide sufficient multi-media/multi-level materials to meet the needs of the students in a developmental reading program.

D. To involve parents, the community, and school personnel in the development of the students' language abilities.

E. To provide for periodic evaluation and continuous monitoring of the reading program to ascertain its effectiveness.

III. OBJECTIVES - General

A. To enlarge the students' interest areas through the use of a wide range of reading materials and other media.

B. To integrate all curriculum areas into the reading program.

C. To reinforce word attack and comprehension skills in conjunction with the basal reading program.

D. To develop independence and competence in reading in students who have experienced reading difficulties.

E. To establish basic study skills and work habits.

F. To organize a cadre of learning partners to tutor under-achievers in reading.

IV. BEHAVIORAL OBJECTIVES

A. The median grade equivalent will increase by at least one year.

B. The number of pupils below the sixteenth percentile will decrease by 5%.

C. The student shall make application of study skills when reading in the content areas.

D. The student will show, in written form or orally, comprehension, word recognition, vocabulary, and study skills.

E. The student will exemplify a good attitude toward reading by:

1. Joining the public library.
2. Participating in book clubs.
3. Making the wide use of the school's I. M. C.
4. Reading more books independently.

F. The student shall demonstrate his ability to do the following:

1. Use parts of a book effectively (table of contents, index, preface, glossary, etc.)
2. Use reference books and periodicals.
3. Make horizontal and vertical outlines.

4. Classify facts and ideas.
5. Separate relevant from irrelevant ideas.
6. Interpret information from maps, graphs, charts, tables.
7. Take notes.
8. Adjust reading rate to purpose and difficulty of materials.
9. Summarize what is read.
10. Use the dictionary.

V. READING PROGRAM COMPONENTS

A. Developmental

1. Ginn 360 will be used by base teachers as the core of the developmental reading program, supplemented with Ginn Workshops, paperback libraries and other high interest materials to reinforce concepts and to stimulate critical thinking. Carnahan and Lyons, Phonics We Use, and Barnell, Loft, Specific Skills Series will be used for additional phonics instruction in fifth and sixth grade classes.

2. Fifteen mods per week will be spent in the teaching of reading as a developmental process (in addition to communications). Classes will cycle according to reading levels. Fifth and sixth grade classes will spend one additional mod per day for emphasis on phonics.

B. Remedial

1. Students who are identified as having special reading problems will receive prescribed instruction by a reading specialist or learning partner when possible in the reading skills center or the diagnostic center. Barnell, Loft, Specific Skills Series; The American Book Company, Triple I Series; Prentice-Hall, Phoenix Readers; Benefic Press, High interest readers, Imperial Skills Tapes and Lessons; and S. R. A. Laboratories will be used as the students' needs indicate.

2. These students will have approximately six to nine mods per week in ungraded groups with the reading specialist, aides, and/or volunteer tutors.

C. Enrichment

1. This program is designed primarily for the highest achievers in reading (those above the seventy-fifth percentile). Emphasis will be placed on the expansion of student's reading interests through the use of wide-range materials and media. The base teachers will play a vital role in this program, as will the I. M. C. director and reading specialist. Activities of students in this program will include reading and recording stories, plays, poetry, etc., to be enjoyed by less proficient readers. It will also include independent study activities. Scholastic Book Series - Contact Kits, and other multi-media materials found in the I. M. C. will form a base for this component of the program.

2. Children participating in this component will spend three to six mods per week in ungraded groups.

D. Staff Development

1. Staff development sessions conducted by the reading specialists will be held for new teachers to define the terms of the proposal, to acquaint them with reading materials, and to demonstrate the teaching of a directed reading lesson and the administering of an I. R. I.

2. Daily, on-site staff development is a major component of the total reading program. The reading teachers will function in the classrooms with teachers to give on-the-spot assistance.

3. The reading specialists will be available during team planning sessions for consultation and assistance.

4. School-wide workshops will be held once a month during staff meeting time so that teachers of a single discipline may develop reading materials which will upgrade the teaching of skills in their own subject area. The sessions may also be used to share techniques used in teaching skills in the content areas and in developmental reading.

E. Community Participation

1. Each parent of the Lewis School body will be encouraged to volunteer his or her services to assist in the reading program.

2. Workshops will be scheduled for the training of volunteers to assist teachers in the teaching of reading.

3. Each house will have a parent representative whose primary function will be to secure adult learning partners from the community and assist the reading specialist in coordinating the reading tutorial program in each respective house.

VI. MANAGEMENT SYSTEM

A. Principal

1. Has major responsibility for the total program.
2. Delegates responsibility for the organization and functioning of the task force.

B. Two Vice-Principals

1. Organize the task force.
2. Schedule meetings of the task force.

3. Meet regularly with the reading specialists and staff members for on-going evaluation of the reading program.
4. Monitor the reading program for the school.

C. House Directors

1. Work with the reading specialists.
2. Correlate the reading programs within each team.

D. Reading Specialists

1. Assist in diagnosing and assessing reading difficulties.
2. Serve, along with language arts teachers, as an instructional resource for all team members.
3. Plan and develop reading programs for the school.
4. Develop and conduct effective workshops for on-going staff development in reading for all teams.
5. Give direct instruction to underachieving readers.
6. Work with paraprofessionals and learning partners providing direction and assistance with methods and procedures.
7. Work and plan cooperatively with all teams in the house.
8. Serve on the Reading Task Force.

E. Content Area Teachers

1. Diagnose and assess reading for areas of difficulty and ascertain reading levels.
2. Provide instruction in skills necessary for effective reading.
3. Provide motivation and individualized activities in the reading areas.
4. Extend and incorporate reading activities into all areas of instruction.
5. Plan cooperatively with other members on the team, house directors and reading teachers for improved instructional methods.
6. Guide and work with learning partners and paraprofessionals in the classroom.

F. Communications Teachers

1. Plan cooperatively with team members, house directors and reading teachers for the total involvement of language arts in the content areas.
2. Assist reading teachers as a resource for classroom instruction.
3. Assist with diagnosing and assessing difficulties in all language arts areas.

G. Librarian

1. Serve as a resource for teachers for instructional materials and the use of the I. M. C.
2. Plan with teachers periodically for selection of books and other aids.
3. Work directly with classes or small groups of students assisting with the instruction on work study skills.

H. Learning Partners

1. Work under the direction of the classroom or supervising teacher.
2. Serve as tutors for individuals or groups of students in the Reading Skills Centers and/or Diagnostic Centers.
3. Assist with record keeping and planning for individual pupils and small groups.

VII. READING TASK FORCE

The Reading Task Force will be comprised of reading specialists, staff representatives from each house, the librarian, P. F. T. and community committee representatives, and the administrative staff. The Task Force will function in an advisory and evaluative capacity to the existing reading programs. It convenes the first Wednesday of each month.

VIII. EVALUATION

Pupil progress will be evaluated by the following instruments:

A. District-wide achievement test (California).

B. Monitoring of classroom activities.

C. Reading inventories administered at the beginning, middle and end of the year.

D. Ginn 360 end of book evaluation tests.

E. Pupil Competency Tests (based on the Pupil Competency Booklet).

F. Teacher observation.

G. Inventories in phonics, study skills, comprehension skills, etc.

H. Student feedback.

Reading skills are frequently broken down into four general categories:

Comprehension
Word Recognition
Study Skills
Literature

The following charts indicate at which levels the various components of each skill are stressed. The levels indicated correspond to those in the Reading Guide titled PUPIL COMPETENCIES.

COMPREHENSION SKILLS

Pupil Competency Level Skill	4	5	6	7	8	9	10	11	12	13	14
Definite and indefinite terms	x										
Quotation marks	x										
Main ideas	x	x	x	x	x	x	x	x	x	x	
Supporting details	x	x	x	x	x	x	x	x	x	x	
Judge relevancy	x	x		x		x					
Anticipates and predicts ideas	x					x	x				
Cause and effect	x										
Classify and categorize	x										
Differentiate between fact and opinion		x									
Concept of time and place	x										
Figurative language		x				x					
Idiomatic expressions		x				x					
Appositional phrases			x				x				
Summarizing			x								
Identification and solving of problems			x								
Relationships between ideas				x						x	
Connotations				x							
Supporting opinions and generalizations				x							
Drawing conclusions and inferences				x		x		x		x	
Making generalizations				x							
Understanding differentiations of meaning				x							
Using details to solve problems					x						
Detecting different viewpoints					x						
Specialized vocabulary and concepts					x						
Abstractions					x						
Story analysis using character, plot, and sub-plot						x					
Propaganda							x				
Satire and irony							x				
Pronoun reference								x			
Synonyms and antonyms								x			
Author purpose and point of view								x		x	
Three parts of an article								x			
Sentence and paragraph meaning									x		
Selection meaning									x		
Critical evaluation										x	x
Integrating reading with previous experience											x
Using reading for problem solving						x	x	x	x	x	x
Understanding newspaper											x
Hypothesis and proof											x
Going beyond reading to productive thinking											x

WORD RECOGNITION SKILLS

Pupil Competency Level Skill	4	5	6	7	8	9	10	11	12	13	14
Consonants	x	x					If evaluation indicates weakness or lack of mastery by student in any of the word recognition areas, the teacher should return to the point in the sequence where the needs were shown.				
Digraphs	x	x									
Blends	x	x									
Diphthongs	x	x									
Short and long vowels	x	x									
Vowel digraphs	x	x									
Plurals	x	x									
Variant endings	x	x									
Syllabication	x	x	x								
Vowels affected by l, r, w		x									
Compounds		x	x								
Contractions		x	x								
Possessives		x									
Affixes		x	x		x	x			x	x	
Root words		x				x			x	x	
Comparative and superlative			x								
Schwa			x								
Changing y to i				x							
Variant spellings				x							
Variant pronunciations				x							
Silent consonants				x							
Unusual spelling				x							
Diacritical marks					x	x					
Phonetic respelling					x	x					
Primary and secondary accent					x						
Abbreviations					x						
Complex polysyllabic words					x						
Guide words (dictionary)					x						
Synonyms, antonyms, homonyms						x					
Structural Analysis						x					
Word Attack Skills CSSD to work out words context, sound, structure, dictionary									x	x	x
Derivation									x	x	x
Differentiation between brand and generic names											x

STUDY SKILLS

Pupil Competency Level Skill	4	5	6	7	8	9	10	11	12	13	14
Parts of book and organization	x										
Alphabetizing	x	x									
Dictionary usage	x	x	x	x	x	x	x				
Outlining - Topical	x										
- Two point		x									
- Three point			x								
- Greater detail				x	x	x	x	x	x		
Note taking			x	x	x	x	x	x	x	x	x
Using reference material			x	x	x	x	x	x	x	x	x
Maps, charts, and graphs				x	x	x	x	x	x		
Indexing and classifying				x	x	x					
Following oral and written directions				x	x	x	x				
Systematic study (i.e. SQ3R)					x	x	x	x	x	x	x
Using glossary and index, etc.					x	x					
Adjusting reading rate to purpose						x	x	x	x	x	x
Efficient library skills						x	x	x	x	x	x
Reading for information						x	x	x	x	x	x
Skimming							x				
Study type reading							x				
Study type reading							x				
Summarizing								x			
Precis writing									x	x	x
Research paper skills									x	x	x
Studying for examination											x
Time budgeting											x
Goal setting for reading											x

LITERATURE

Pupil Competency Level Skill	4	5	6	7	8	9	10	11	12	13	14
Following plot	x										
Reality vs. fantasy	x										
Listens to and appreciates multi-ethnic literature	x	x	x	x	x	x	x				
Enjoys figurative and idiomatic language		x	x	x							
Develops taste for varied literary forms		x	x	x							
Selects books for pleasure		x	x	x	x	x	x	x	x	x	x
Understands sensory imagery			x								
Understands author's intent				x							

COMMUNICATIONS
5TH - 8TH GRADES

CONTENT AREAS

1. LISTENING AND SPEAKING
   a. Conversing
   b. Discussing
   c. Giving Information
   d. Storytelling
   e. Dramatizing
   f. Choral Speaking
   g. Following Oral Directions
   h. Giving Oral Reports
   i. Participating in a Meeting
   j. Telephone Conversation
   k. Broadcast and Microphone Techniques

2. WRITTEN MECHANICS
   a. Punctuation
   b. Capitalization
   c. Abbreviation
   d. Possessives
   e. Tense
   f. Antonyms
   g. Homonyms
   h. Synonyms

3. GRAMMAR
   a. Noun
   b. Pronoun
   c. Verb
   d. Adjective
   e. Adverb
   f. Noun Phrase
   g. Adjective Phrase
   h. Subject
   i. Predicate

4. USAGE

5. WRITTEN MATERIAL
   a. Complete Sentences
   b. Paragraphing
   c. Outlining
   d. Story Writing
   e. Writing Procedure
   f. Proofreading

6. WRITTEN EXPRESSION

   a. Letter Writing
      1. friendly
      2. business
      3. invitations
   b. Writing Stories
   c. Reports and Records
   d. Projects (general)
   e. Poetry

7. VOCABULARY

   a. Prefixes
   b. Suffixes
   c. Etymology

8. SPELLING

9. HANDWRITING

10. COMPARATIVE FOREIGN LANGUAGES

11. LOCATING INFORMATION

   a. Table of Contents
   b. Index
   c. Glossary
   d. Appendix
   e. Dictionary
   f. Library Orientation
   g. Reference books and Encyclopedias
   h. Newspapers and Periodicals

12. INTERPRETATION OF SYMBOLS

   a. Dewey Decimal System
   b. Map Skills
   c. Atlas and other Reference Materials

13. CRITICAL READING

   a. Discriminating between fact and opinion
   b. Analyzing propaganda techniques
   c. Interpreting mood
   d. Mythology

14. PROGRESSIVE THINKING

   a. Making Generalizations
   b. Seeing Cause and Effect
   c. Comparison and Contrast
   d. Chronological Sequence
   e. Drawing Conclusions
   f. Forming Sensory Images

15. LITERATURE APPRECIATION

WRITTEN EXPRESSION

PUPIL COMPETENCIES:

5th GRADE - V, VI, VII

6th GRADE - VI, VII, VIII

7th GRADE - VII, VIII, IX

8th GRADE - VIII, IX, X

5TH GRADE

1. LISTENING AND SPEAKING
   a. Conversing - to speak clearly and slowly to avoid use of slang
   b. Discussing - to express ideas in a logical manner
   c. Giving Information
   d. Storytelling - to report orally to class a 3- to 5-minute story
   e. Dramatizing - to participate in one play
   f. Choral Speaking - to have learned and recited three poems or selections
   g. Following Oral Directions
   h. Giving Oral Reports
   i. Participating in a Meeting - to elect a president of the class
      to decide on majority rule
      to be responsive to the actions of the class
   j. Telephone Conversation - to answer, give or take messages correctly
   k. Broadcast and Microphone Technique - to have the opportunity to record his voice and listen
      to play back

2. WRITTEN MECHANICS
   a.-d. (as indicated in "Written Expression" - guide levels V, VI, VII)
   e. Tense
   f. Antonyms)
   g. Homonyms) to know the terms and be able to discriminate between each and give an example
   h. Synonyms)

3. GRAMMAR
   a. Noun - to recognize
   b. Pronoun - to recognize
   c. Verb - to recognize
   d. Adjective - to recognize
   e. Subject - to recognize simple subject
   f. Predicate - to recognize simple predicate

4. USAGE - to be aware of correct forms of words
   to discriminate between correct and incorrect usage
   to begin to correct one's own mistakes when pointed out

5. WRITTEN MATERIAL

a. Complete Sentences - to write a complete sentence

b. Paragraphing } see levels guide

c. Outlining }

d. Story Writing - to write a simple story

e. Writing Procedure - see guide - "Language Arts Instructions"

6. WRITTEN EXPRESSION

a. Letter Writing - to write a friendly letter

to write an invitation

b. Reports and Records - to gather information and present it in an acceptable form

c. Projects - to be expected to present two extra credit reports

d. Poetry - to recognize a poem

to be exposed to rhymed and blank verse

to write a simile

to write a rhymed couplet

7. VOCABULARY

5th grade list

prefixes, suffixes included - to be used in conjunction with Latin

8. SPELLING

Rules - see guide "Language Arts Instruction"

9. HANDWRITING

10. COMPARATIVE FOREIGN LANGUAGE

to be exposed to a year of Latin instruction

to be exposed to any other language that classroom teacher has knowledge of

11. LOCATING INFORMATION

a. Table of Contents)

b. Index) to read and understand how to use

c. Glossary)

d. Appendix)

e. Dictionary - to use a dictionary

f. Library Orientation - to know procedure and behavior in the library
to use card catalog
to be responsible for upkeep of books

g. Reference books and Encyclopedias - to use these kinds of books effectively

h. Newspapers and Periodicals - to read an article and pick out the who, what, where, why, when, how

12. INTERPRETATION OF SYMBOLS

a. Dewey Decimal System - to locate material using system

b. Map Skills) to read the key and understand implication of symbols

c. Atlas)

13. CRITICAL READING

a. Discriminate between fact and opinion

b. Interpreting mood

c. Mythology - to read and discuss the lessons taught by myths and to explore with Latin teacher

14. PROGRESSIVE THINKING

a. Making Generalizations - to pick out patterns and express them

b. Seeing Cause and Effect

c. Chronological Sequence

d. Drawing Conclusion

e. Forming Sensory Images

15. LITERATURE APPRECIATION

6TH GRADE

1. LISTENING AND SPEAKING
   a. Conversing*
   b. Discussing*
   c. Giving Information
   d. Storytelling - to report orally to class a 5- to 10-minute story
   e. Dramatizing - to participate in one play
   f. Choral Speaking - to have learned and recited five poems or selections
   g. Following Oral Directions
   h. Participating in a Meeting*
   i. Giving Oral Reports
   j. Telephone Conversation
   k. Broadcast and Microphone Techniques - to tape a poem or short selection

2. WRITTEN MECHANICS
   a.-d. (see guide levels VI, VII, VIII - "Written Expression")
   e. Tense
   f. Antonyms*
   g. Homonyms*
   h. Synonyms*

3. GRAMMAR
   a. Noun*
   b. Pronoun*
   c. Verb*
   d. Adjective*
   e. Noun Phrase - to recognize
   f. Adjective Phrase - to recognize
   g. Subject*
   h. Predicate*

4. USAGE*

5. WRITTEN MATERIAL

*refer to 5th Grade Guide

a. Complete Sentences*
b. Paragraphing } check levels guide
c. Outlining }
d. Story Writing*
e. Writing Procedure* - (see guide "Language Arts Instruction")
f. Proofreading - to check one's own writing for mistakes

6. WRITTEN EXPRESSION
   a. Letter Writing* - to write a business letter
   b. Writing Stories - to write a three paragraph story
   c. Reports and Records*
   d. Projects*
   e. Poetry*

7. VOCABULARY
   a. Prefixes
   b. Suffixes
   c. Vocabulary - to be included from all other team teachers

8. SPELLING
   Rules - (see guide "Language Arts Instruction")

9. HANDWRITING
   (see guide "Language Arts Instruction")

10. COMPARATIVE FOREIGN LANGUAGE

11. LOCATING INFORMATION
   a. Table of Contents*
   b. Index*
   c. Glossary*
   d. Appendix*
   e. Dictionary*
   f. Library Orientation*
   g. Reference books and Encyclopedias*
   h. Newspapers and Periodicals*

*refer to 5th Grade Guide

12. INTERPRETATION OF SYMBOLS
    a. Dewey Decimal System*
    b. Map Skills*
    c. Atlas*

13. CRITICAL READING
    a. Discriminating between fact and opinion*
    b. Interpreting mood*

14. PROGRESSIVE THINKING
    a. Making Generalizations*
    b. Seeing Cause and Effect
    c. Chronological Sequence
    d. Drawing Conclusion
    e. Forming Sensory Images

15. LITERATURE APPRECIATION

*refer to 5th Grade Guide

7TH GRADE

1. LISTENING AND SPEAKING
   a. Conversing* - to make effective use of body movement and gestures
   b. Discussing* - to use more complex and polysyllabic vocabulary
   c. Giving Information
   d. Storytelling - to report orally to the class a 15-minute story
   e. Dramatizing*
   f. Choral Speaking*
   g. Following Oral Reports
   h. Giving Oral Reports
   i. Participating in a Meeting* - to have minutes and to read at each meeting
   j. Telephone Conversation*

2. WRITTEN MECHANICS
   a.-d. (as indicated in "Written Expression" guide levels VII, VIII, IX)
   e. Tense
   f. Antonyms*
   g. Homonyms*
   h. Synonyms*

3. GRAMMAR
   a. Noun*
   b. Pronoun*
   c. Verb*
   d. Adjective*
   e. Adverb - to recognize
   f. Noun Phrase*
   g. Adjective Phrase
   h. Subject
   i. Predicate

4. USAGE*
   to use correctly in all types of communication those points listed,
   Refer to guide "Language Arts Instruction."

*refer to 5th or 6th Grade Guide

5. WRITTEN MATERIAL

   a. Complete Sentences*

   b. Paragraphing)

   c. Outlining)

   d. Story Writing* - to develop imaginative stories

      to use appropriate vocabulary

      to recognize the elements of plot

      1. situation
      2. characters
      3. logical sequence of events
      4. element of surprise
      5. conclusion

      to write conversation

   e. Writing Procedure - see guide "Language Arts Instruction"

   f. Proofreading*

6. WRITTEN EXPRESSION

   a. Letter Writing - to write invitations (acceptance, regrets)

      to write notes of thanks, congratulations, appreciation

   b. Writing Stories

   c. Reports and Records* - to discriminate between important and unimportant facts

      to differentiate between fact and opinion

   d. Projects - to be expected to present three extra credit reports

   e. Poetry* - to write a quatrain

7. VOCABULARY

   a. Prefixes

   b. Suffixes

   c. Etymology

8. SPELLING

   Rules - see guide "Language Arts Instruction"

9. HANDWRITING

   See guide "Language Arts Instruction"

10. COMPARATIVE FOREIGN LANGUAGE

*refer to 5th or 6th Grade Guide

11. LOCATING INFORMATION
    a. Table of Contents*
    b. Index*
    c. Glossary*
    d. Appendix*
    e. Dictionary*
    f. Library Orientation*
    g. Reference books and Encyclopedias*
    h. Newspapers and Periodicals
    i. Bibliography (writing)

12. INTERPRETATION OF SYMBOLS
    a. Dewey Decimal System*
    b. Map Skills*
    c. Atlas*

13. CRITICAL READING
    a. Discriminating between fact and opinion
    b. Analyzing propaganda
    c. Interpreting mood

14. PROGRESSIVE THINKING
    a. Making Generalizations
    b. Seeing Cause and Effect
    c. Chronological Sequence
    d. Drawing Conclusion
    e. Forming Sensory Images

15. LITERATURE APPRECIATION

*refer to 5th or 6th Grade Guide

8TH GRADE

1. LISTENING AND SPEAKING
   a. Conversing* - to be able to use effectively - tone, pitch, volume for different speaking situations
   b. Discussing*
   c. Giving Information*
   d. Storytelling*
   e. Dramatizing*
   f. Choral Speaking - to have learned and recited five or more poems or selections
   g. Following Oral Directions*
   h. Giving Oral Reports
   i. Participating in a Meeting - to be able to use Parliamentary procedure in conducting meetings
   j. Telephone Conversation*

2. WRITTEN MECHANICS
   a.-d. (as indicated in "Written Expression" guide levels VIII, IX, X)
   e. Tense
   f. Antonyms*
   g. Homonyms*
   h. Synonyms*

3. GRAMMAR
   a. Noun*
   b. Pronoun*
   c. Verb*
   d. Adjective*
   e. Adverb*
   f. Noun Phrase*
   g. Adjective Phrase*
   h. Subject*
   i. Predicate*

4. USAGE*

*refer to 5th, 6th, or 7th Grade Guide

5. WRITTEN MATERIAL

   a. Complete Sentences*

   b. Paragraphing } see levels guide

   c. Outlining }

   d. Storywriting*

   e. Writing Procedure - see guide "Language Arts Instruction"

   f. Proofreading*

6. WRITTEN EXPRESSION

   a. Letter Writing* - to be able to use clearness, brevity, courtesy, tact, sincerity, or cordiality, as the occasion demands

   b. Writing Stories

   c. Reports and Records*

   d. Projects*

   e. Poetry* - to be able to recognize and use:

      personification
      similes
      metaphors
      alliteration

7. VOCABULARY

   a. Prefixes

   b. Suffixes

   c. Etymology

8. SPELLING

   Rules - see guide "Language Arts Instruction"

9. HANDWRITING

   See guide - "Language Arts Instruction"

10. COMPARATIVE FOREIGN LANGUAGE

11. LOCATING INFORMATION

   a. Table of Contents*

   b. Index*

   c. Glossary*

   d. Appendix*

*refer to 5th, 6th, or 7th Grade Guide

e. Dictionary*
f. Library Orientation*
g. Reference books and Encyclopedias*
h. Newspapers and Periodicals
i. Bibliography (writing)

12. INTERPRETATION OF SYMBOLS
a. Dewey Decimal System*
b. Map Skills*
c. Atlas*

13. CRITICAL READING
a. Discriminating between fact and opinion
b. Analyzing propaganda
c. Interpreting mood

14. PROGRESSIVE THINKING
a. Making Generalizations
b. Seeing Cause and Effect
c. Comparison and Contrast
d. Chronological Sequence
e. Drawing Conclusion
f. Forming Sensory Images

15. LITERATURE APPRECIATION

*refer to 5th, 6th, or 7th Grade Guide

BIBLIOGRAPHY

SPEAKING-PUPIL COMPETENCIES, Philadelphia Board of Education, 1973

LANGUAGE ARTS INSTRUCTION THE EXPRESSIVE PHASES, Philadelphia Board of Education, 1973

WRITTEN EXPRESSION, PUPIL COMPETENCIES, Philadelphia Board of Education, 1973

WRITTEN COMPOSITION IN SECONDARY SCHOOL, Board of Education, 1971

LITERATURE IN SECONDARY SCHOOLS, Board of Education, 1971

SPEAKING AND LISTENING IN SECONDARY SCHOOLS, Philadelphia Board of Education, 1971

STUDY SKILLS FOR SECONDARY STUDENTS, Philadelphia Board of Education, 1973

READING-PUPIL COMPETENCIES, Philadelphia Board of Education, 1973

WORK WITH WORDS, Philadelphia Board of Education, 1962

THE READING PROCESS IN THE CONTENT AREAS, Philadelphia Board of Education, 1973

COMMUNICATIONS SCOPE AND SEQUENCE, Ada Lewis Faculty, 1973

5TH AND 6TH GRADE VOCABULARY CHECK

total
discover
courageous
arena
divide
tardy
prepare
country
finished
release
desire
information
question
vibrating
strength
operate
factory
dramatic
graceful
sensible
absurd
native
uniform
vital
design
ordinary
amusing
discouraged
continent
distinguished
violent
development
principal
humble
visible
bind
resource
population
devise
challenged
fraction
explanation
classify
human
desirable

active
adjusted
avenue
several
seek
improved
dangerous
sketch
vanishing
join
torture
present
distant
deed
blundering
knowledge
material
manufacture
normal
slim
prompt
slender
artificial
deceived
content
valuable
possible
peer
various
horror
irregular
dismiss
commence
position
insure
portion
source
mineral
practical
possibility
starved
imagination
opportunity
solution
civilization

fantastic
delicate
returned
unusual
offer
separate
coarse
completed
stripe
awkward
nation
device
reduce
related
recognition
reasonable
strange
preferable
advance
pluck
maintain
regulate
decorated
cultivation
original
agriculture
correct
meander
describable
deserted
independent
humorous
ignore
captivity
dismayed
arrangement
supplement
touch
vicious
revenue
conclusion
elusive
approach
timid
emphasize

45

7TH AND 8TH GRADE VOCABULARY CHECK

abundant
pretended
courage
coinciding
regain
trace
adequate
convention
transparent
conversation
compensation
abolish
oppose
diminish
irregular
systematic
muscular
elaborate
illuminate
deceitful
civilization
inferior
glance
method
restricted
external
inhibit
legal
restore
progress
inspire
curves
extension
secrecy
interior
barren
retract
irrigated
plantation
eliminate
diagram
acceptance

resolute
acquire
deviated
undecided
pitiful
augmented
worth
surplus
competition
diverged
valor
hideous
assess
minimum
obscure
sheer
legislate
brawny
fraudulent
frivolous
accuracy
exterior
assurance
proclaim
astounded
innocent
stunned
positive
confined
tremendous
accuse
instruct
pliable
diminish
extract
scenic
continent
anxiety
emission
application
subscription
assess

resist
determined
absurd
dialogue
citizen
originate
society
comparison
supplement
credit
hostile
caution
punctual
enormous
estimate
concurring
abnormal
experimental
antagonistic
argument
guarantees
glare
grasp
definite
greedy
duped
persuade
eventually
guiltless
encourage
erosion
strife
conservation
precaution
stimulate
contribution
spontaneously
media
impractical
coherent
immensely
punctual

SCIENCE
5TH GRADE

EARTH SCIENCE (16 wks.)

Air is matter

Air pressure

Measuring air pressure

Composition of air

How does moisture get into the air?

Oxygen is necessary to life

Impurities in the air (pollution)

Highs and lows

Winds and wind systems

Distribution of water on earth--fresh and salt

Hydrologic Cycle
ESS - Ice Cubes; Text - Unit 3, Concepts in Science, Bk. 4 - p. 73
Unit 7, Concepts in Science, Bk. 4 - p. 319

Water pressure

Sources of fresh water on earth

Water treatment

Water distribution

Uses of water

Water conservation
ESS - Kitchen Physics; Text - Unit 3, Concepts in Science, Bk. 4 - p. 73

EARTH IN SPACE

Gravity and inertia (force)

*Centrifugal and centripetal force

Composition of Solar System
ESS - Daytime Astronomy; Text - Unit 4, Concepts in Science, Bk. 5 - p. 155

*Indicates concepts for more advanced students

PHYSICAL SCIENCE (8 wks.)

Matter and energy

Levers (how wheels help us), inclined plane, pulleys

Friction (friend and foe)

Machines (simple and complex)
ESS - Structures
ESS - Tangrams

LIFE SCIENCE (16 wks.)

What is a living thing?

How do plants and animals differ?

Kinds of animals

Kinds of plants

How do we benefit from plants and animals?

How do animals move?
ESS - Animal Activity; Behavior of Mealworms

How do plants move?

How do animals get food?

How do animals get air?

How are animals protected?

Animal conservation

How do animals begin life?

How do plants begin life?

How do plants nourish themselves?

How are plants protected?

Plant conservation

EARTH SCIENCE (12 wks.)

The earth's crust is made of rock (igneous, sedimentary, metamorphic)

Rocks contain minerals.

Rocks and minerals are identified by appearance, hardness, and other tests.

Minerals are used as gem stones; many minerals are used in the home and industry.

The earth's surface is always changing.

Unequal pressures in the earth's crust cause folding and cracking of the earth's surface and the pushing up of mountains.

Some islands and mountains are formed by volcanoes.

Rocks are worn away by various agents such as water, glaciers, winds, plant and animal life, chemicals, and changes in temperature.

Some mountains result from the erosion of plateaus.

Rocks and soils are moved by glaciers and left as deposits.

Soils of the world have been built up gradually by the erosion of rocks and decaying materials of plants and animals.

Some soil is washed into the sea as sediment.

Changes in the earth's crust over millions of years have caused the formation of coal, oil, natural gas, precious stones, and other minerals.

Scientists believe the climate of the earth has changed many times since the first land masses appeared.

By studying the features of a landscape, a geologist can tell what the landscape looked like millions of years ago.

A fossil is evidence of a living thing of the past.

Fossils help scientists to know what ancient animals and plants were like and something about the history and climate of past ages.

Scientists believe the climate and surface of the earth have been an influence in the changes which plants and animals have undergone.

PHYSICAL SCIENCE (8 wks.)

Sound (cause of):
ESS - Whistles and Strings - Text - Unit 1, Concepts in Science, Bk. 4 - p. 2

How does sound travel?

Musical instruments
ESS - Musical Instrument Recipe Book

Human ear

Magnetism:

What do we know about magnets?

What is a magnet?

Kinds of magnets

Law of magnets

Magnetic fields

Electricity creates magnetism
ESS - Batteries and Bulbs - Text - Unit 6, Concepts in Science, Bk. 6 - p. 225

Use of magnets

The earth is a magnet

LIFE SCIENCE (20 wks.)

Interdependence of plants and animals
ESS - Pond Water - Text - Unit 8, Concepts in Science, Bk. 4 - p. 282
ESS - Budding Twigs - Text - Unit 6, Concepts in Science, Bk. 4 - p. 193

Interdependence within species

Interdependence of differing species

Animal competition

Food chains

Man's place in the web of life

How do plants and animals depend on man?

7TH GRADE

EARTH SCIENCE (14 wks.)

Meteorology:

Vertical structure of the atmosphere

Weather elements

Radiant energy and air temperature

Air pressure and air motion

Wind systems

Air masses

Fronts

Storms

Predicting the weather

Weather satellites

Oceanography:

Relation to other sciences

History of oceanography

Functions of the oceans

Characteristics of oceans and ocean basins

Chemistry of sea water

Movements of ocean water: currents, waves, tides, and economic importance of oceans

Earth in Space:

Hypothesize on creation

Age of the earth

How do we locate celestial objects?
ESS - Where is the Moon? - Text, Concepts in Science, Bk. 5 - p. 3

Stars, constellations, and galaxies

Astronomy vs. Astrology
ESS - Daytime Astronomy - Text - Unit 7, Concepts in Science, Bk. 5 - p. 155

PHYSICAL SCIENCE (6 wks.)

Chemical and physical changes

Elements

Compounds

Law of conservation of energy

LIFE SCIENCE (20 wks.)

Characteristics of life

How does a microscope help us to study living things?

The cell: unit of structure

Organization of cells

Microscopic organisms: Algae, bacteria, yeasts, molds, protozoa, viruses

World of plants: survey of the plant kingdom
ESS - Starting from Seeds - Text, Concepts in Science, Bk. 6 - p. 152;
Bk. 4 - p. 160-163

Life cycle of flowering plants

World of animals: Animals without backbones, animals with backbones

Reproduction: hereditary materials, chromosomes, DNA, mitosis

8TH GRADE

CHEMICAL SCIENCE (20 wks.)

Atomic theory

Properties of matter - general - specific

Review chemical and physical changes

Elements - the building blocks of matter

Metals and nonmetals

How can elements be arranged in a table?

Compounds and mixtures

Conservation of our resources
ESS - Balloons and Gases - Text - Unit 3, Concepts in Science, Bk. 5 - p. 115

PHYSICAL SCIENCE (20 wks.)

Magnetism and Electricity

Review magnetism

Behavior of electricity

Electrical nature of matter

How do atoms become charged?

Static electricity

Insulators and conductors

Effects of static electricity

What makes a current flow?

Electricial units

The electric circuit

Chemical energy is changed to electrical energy

Series and parallel circuits
ESS - Batteries and Bulbs - Text - Unit 6, Concepts in Science, Bk. 6 - p. 255

Measuring an electric current

The electric generator and transformer

Putting electricity to work

- Electrical resistance
- Heat and light from electricity
- How does a radio or television work?
- The electric motor

How we use light

- What is light?
- How does light travel?
- Reflection - refraction
- What is a prism?
- The spectrum
- What is a lens?
- The human eye
- Light can produce chemical changes
- Photography depends on light
- Review photosynthesis

What is heat?

- Sources of heat
- Expressing heat, temperature and calories
- Measuring temperature
- Expansion and contraction
- Heat transfer
- Heating the earth by radiant energy

Review Sound

- Introduce Doppler effect

Review Simple Machines

- Overcoming gravity and friction
- Energy and work
- Complex machines
- How do propeller - driven planes fly?
- Jets and rockets

ESS - Batteries and Bulbs - Text, Concepts in Science, Bk. 6 - p. 255

SUPPLEMENTARY

*Environmental Science

To develop an understanding of the importance of an adequate supply of clean water.

To develop an understanding of the importance of soil.

To understand the interrelationships of water, trees and smaller plants, soil, and wildlife.

To learn the importance of wildlife in our state.

To understand that conservation of mineral resources means man should make the maximum use of the minerals present in the earth with complete elimination of waste in these resources.

To develop an understanding of the importance of clean air.

*Space exploration

Newton's work

Kepler's Laws

Satellite orbits

Orbital velocity

Escape velocity

Rocket engines

Why space travel?

Inner space discoveries

Moon probes

Planetary probes

Orbiting observatories

*In lieu of life science at the eighth grade level, the above supplementary units may be used.

ELEMENTARY SCIENCE STUDY (E) GRADES 5-8

5th Grade Level	Book Reinforcement
Animal Activity Behavior of Mealworms	
Ice Cubes	Unit 3 - Concepts in Science Book 4 - p. 73 Unit 7 - Concepts in Science Book 6 - p. 319
Whistles and Strings	Unit 1 - Concepts in Science Book 4 - p. 2

6th Grade Level	Book Reinforcement
Structures	
Pond Water	Unit 8 - Concepts in Science Book 4 - p. 282
Budding Twigs	Unit 6 - Concepts in Science Book 4 - p. 193
Kitchen Physics	Unit 3 - Concepts in Science Book 4 - p. 73
Batteries and Bulbs	Unit 6 - Concepts in Science Book 6 - p. 255

7th Grade Level	Book Reinforcement
Starting From Seeds	Concepts in Science Book 6 - p. 152 Book 4 - p. 160-163
Where is the Moon? Tangrams	Concepts in Science Book 5 - p. 3
Daytime Astronomy	Unit 4 - Concepts in Science Book 5 - p. 155

8th Grade Level	Book Reinforcement
Balloons and Gases	Unit 3 - Concepts in Science Book 5 - p. 115
Batteries and Bulbs	Unit 6 - Concepts in Science Book 6 - p. 255
Musical Instruments Recipe Book	Unit 1 - Concepts in Science Book 4 - p. 2

5TH GRADE SCIENCE VOCABULARY

adapt
environment
behavior
evidence
science
interdependence
hypothesis
life cycle
oxygen cycle
pollution
population
probe
research
stimulus
substance
concept
communicate
ecologist
ecosystem
evidence
observe
altimeter
artesian well
water cycle
water vapor
theory
matter
solid
liquid
gas
plasma
energy
living
non-living
cell
bacteria
algae
chlorophyll
food chain
fungi
membrane
nitrate
phosphate
plankton
protozoan
spore
yeasts
nimbus
males

barograph
barometer
cumulus
depth finder
dew point
front
humidity
hygrometer
ionosphere
latitude
longitude
precipitation
prevailing winds
sextant
stratosphere
stratus
troposphere
water table
condense
cycle
evaporate
fact
fertilizer
crust
force
glacier
mouth
pressure
sediment
volcano
weathering
slate
silt
radiosonde
sediments
seismographs
gravity
conservation
friction
work
space
botanist
machine
vertebrate
invertebrate
nutrients
cones
protoplasm
photosynthesis

6TH GRADE SCIENCE VOCABULARY

geologist
block
crystal
sediments
sedimentary rock
radiosonde
quartz
fossil
mineral
erosion
faulting
feldspar
folding
pumice
petroleum
anthracite
granite
gravitation
gravity
lava
level
lignite
food chain
interdependence
magma
magnetic poles
silt
pressure
glacier
soil
rock
mantle rock
marble
metamorphic rock
meteorologist
mica
land moss
climate
lodestone
pole
magnet
magnetite
magnetic field
vibrating
medium
weather
lines of force
force

7TH GRADE SCIENCE VOCABULARY

absorption
assimilation
chromosomes
circulation
cytoplasm
digestion
dominate
egestion
embryo
epidermis
excretion
genes
heredity
hybrid
ingestion
membrane
mutation
nucleus
organ
organism
fungus
reproduction
decay
fermentation
fission
culture medium
carbon dioxide
annual
biennial
cambium
chlorophyll
chloroplast
cotyledon
embryo
fertilization
fungus
organ
organism
protoplasm
recessive
reproduction
respiration
sensitivity
stimulus
algae
antibiotic
bacteria
budding
colony
yeast
virus
spore
protozoa
nitrogen fixing
mold
oxygen
microbe
microscope
pistil
pith
pollination
germination
respiration
root cap
root hair
sepal
spare
stamen
stomata
radicle
transpiration
vein

8TH GRADE SCIENCE VOCABULARY

germination
liverwort
midrib
monocotyledon
osmosis
petal
petiole
photosynthesis
coral
crocodile
crustacean
diaphragm
dinosaur
environment
estivation
fertile
gill
habitat
hibernation
hookworm
hydra
insect
jellyfish
larva
lizard
locomotion
millipede
mosquito

adaptation
alligator
amphibian
appendage
aquatic
atoll
bivalve
centipede
conservation
inorganic
organic
parasite
protective coloration
spider
reptile
sea urchin
secrete
segment
skeleton
species
starfish
tapeworm
trichina
univalve
oyster
mammal
mollusk

SCIENCE TEACHING UNITS

5th Grade

Earth Science
Space Science
Physical Science
Life Science

6th Grade

Earth Science
Physical Science
Life Science

7th Grade

Earth Science
Space Science
Physical Science
Life Science

8th Grade

Chemical Science
Physical Science

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5TH GRADE

1. EARTH SCIENCE
   a. There are many different types of environment
   b. Living and non-living things
   c. Definition of matter
   d. Air is matter
   e. Composition of air
   f. Oxygen is necessary to life
   g. Air pressure
   h. Measuring air pressure
   i. Air pressure and predicting weather
   j. Wind as moving air
   k. Impurities in the air
   l. Distribution of water-fresh, salt
   m. Nothing is lost-hydrologic cycle
   n. Measuring water pressure
   o. Source of fresh water
   p. Water treatment
   q. Water distribution
   r. Water table
   s. Water conservation

2. SPACE SCIENCE
   a. Where is space?
   b. What is space?
   c. Centrifugal and centripetal force
   d. Gravity and inertia
   e. Objects in space

3. PHYSICAL SCIENCE
   a. Matter and Energy
   b. Forms of matter - Forms of energy
   c. Energy transfer - Uses
   d. Machines - Simple, Complex
   e. Friction

4. LIFE SCIENCE
   a. What is a living thing?
   b. How do plants and animals differ?
   c. Different kinds of plants and animals
   d. How are plants and animals alike?
   e. Ecology
   f. How are living things dependent upon one another?
   g. Plant and animal communities
   h. How do living things adapt to changes in their environment?

1. EARTH SCIENCE

   a. How do scientists think the earth formed?
   b. Early theories (hypotheses)
   c. Present-day ideas
   d. What causes the earth to change?
   e. Surface variations
   f. Evidences of changes
   g. Development of living things (Types and Locations)
   h. Geologic eras

2. PHYSICAL SCIENCE

   a. Sound

      (1.) What is sound?
      (2.) Properties of sound
      (3.) Effects of sound
      (4.) How does sound travel?
      (5.) What are some sources of sound? (Musical instruments)
      (6.) Human ear (What is the ear? What are the structures within the ear? How do these structures enable us to hear?)

   b. Magnetism

      (1.) What is a magnet?
      (2.) Kinds of magnets
      (3.) Law of magnets
      (4.) Magnetic fields
      (5.) Electricity creates magnetism
      (6.) Uses of magnets
      (7.) The earth is a magnet
      (8.) What do we know about magnets?

3. LIFE SCIENCE

   a. Living things adapt to changes in the environment
   b. Ecological relationships exist between living organisms and their natural environments
   c. A community includes a variety of plants and animals which depend upon one another
   d. Each living thing (organism) gets its living from its community
   e. Food chains and food webs

7TH GRADE

1. EARTH SCIENCE

   a. The importance of studying our environment
   b. Why study the earth?
   c. Why study space?
   d. Why study the earth and space together?
   e. How scientists study the earth and space?
   f. Fields of study in the earth and space sciences
   g. Composition of the atmosphere
   h. What is weather?
   i. How can weather be observed and described?
   j. How is weather forecast?
   k. What weather research is being done?

   *Review the origin and structure of the earth.
   *Project Mohole

2. SPACE SCIENCE

   a. Origin of the solar system (theories) (hypotheses)
   b. Acceptance of theories (Condensing - cloud theories)
   c. "Invisible" objects in space
   d. The sun and its planets
   e. Our planet earth
   f. The earth rotates on its axis*
   g. The earth revolves around the sun
   h. The motions of the earth are the basis of time
   i. The earth's satellite: The Moon
   j. Stars - Constellations
   k. Exploring Space
   l. How do astronomers conduct research?

   *(Modern Theory)
   *Parallels of latitude)
   Meridians of longitude) Conjunction with Social Studies

   m. What instruments are used in space research?
   n. Sounding Rockets
   o. Man-made satellites
   p. Problems of space flight
   q. What has man learned about space?
   r. How has space research helped man?
   s. Applications in communications
   t. Applications in meteorology

3. PHYSICAL SCIENCE

   a. What is physical science?
   b. Review matter
   c. Review energy

d. Review sound
e. How to distinguish between matter and energy?
f. Energy can change matter
g. Tools used in physical science

4. LIFE SCIENCE

a. The life function
b. The cell
c. Organization of cells
d. Microscopic organisms
e. Plant kingdom
f. Life cycle of the flowering plant
g. Vertebrates
h. Invertebrates

8TH GRADE

1. CHEMICAL SCIENCE

   a. Properties of matter (general)
   b. Special properties of matter
   c. Changes in matter
   d. What is chemistry?
   e. The chemical elements
   f. Atoms
   g. Molecules, compounds and mixtures
   h. Heat

2. PHYSICAL SCIENCE

   a. Sources of heat
   b. Heat and molecular motion
   c. Measuring heat
   d. Transferring heat
   e. Using heat
   f. Controlling heat

   Light

   a. Sources of light
   b. Transmission of light
   c. Reflection and refraction
   d. Light and vision
   e. Radiations

   Sound

   a. Properties of sound
   b. Voice and ear
   *c. Making and using sound
   d. Controlling sound

   *Doppler Effect

   Magnetism and Electricity

   a. Magnetism
   b. Static Electricity
   c. Current Electricity

   Atomic Energy

   a. Radioactivity
   b. Nuclear Energy
   c. Peaceful Uses of Atomic Energy

   Work and Machines

   a. Energy and Work
   b. Simple Machines
   c. Complex Machines

For additional information, see Science and Bibliography (Addition), The School District of Philadelphia, Office of Curriculum and Instruction, Science Education Division, 1973

MATHEMATICS

COMPONENTS OF A GOOD MATHEMATICS LESSON

I. Drill

   A. Number Facts
   B. Processes

II. Lesson

   A. Review and/or Motivation
   B. Presentation of new material
   C. Practice

III. Game, Enrichment, Evaluation

   A. Drill with game approach
   B. Puzzles using concepts that have been taught
   C. Supplementary methods of performing operations
   D. Discussion of day's work and a forward look

Bernice Crump,
Mathematics Collaborator

VOCABULARY - TO BE USED IN LEVELS TESTS

LEVEL X

as
associative
award
beans
bill
both
book
bought
came
car
century
chart
common
commutative
decimal
denominate
distributive
dry
end
equation
expanded
fractional
her
identity
if
illustrate
improve
improvement
jelly
keep
kept
label
leap year
liquid
mathematical
measurement
mother
no
notation
numeration
October
pennies
platter
possible
problem
proper
properties
pull-up
push-up
question
rational
ray
read
region
sell
sister
sit-up
sold
system
team
test
told
toy
track
weight
who
win

LEVEL XI

among
arts
attendance
boy
bus
card
class
club
craft
dates
December
degrees
diameter
different
dropped
equally
equilateral
false
fun
geometric
gift
given
greatest
highest
indoor
isosceles
kindergarten
lowest
match
Monday
normal
November
picture
present
radius
record
room
same
saved
score
seventy
share
sharpened
square
stop
three
Thursday
total
town
Tuesday
two
units
Wednesday
word

LEVEL XII

average
can (container)
chair
complete
cone
cube
cylinder
does
dull
Egyptian
equivalent
every
far
figure
from
gained
information
juice
mile
Monday
name
nearest
need
next
now
nurse
orange
package
perimeter
poured
pyramid
reweighed
Roman
round off
Saturday
school
seat
September
solid
sphere
store
ten
tenth
together
travel
walked
wanted
weighs

LEVEL XIV

acute
angle
base
bike
bisect
body
both
Boy Scout
camp
closer
compass
construct
factor
farther
fell
flew
fly
form
fame
hiked
improve
intersecting
loves
legs
lowest terms
midget
miles per hour
morning
obtuse
parallel
plane (air)
planes (figures)
rain
rainfall
rest
ride
right (angle)
rode
straightedge
trip

LEVEL XV

at bat
boiling
broken
calculating
cashier
centigrade
coldest
contain
cover
customer
describe
enough
Fahrenheit
fathom
freezing
gas (gasoline)
grade
hits
hexagon
kilogram
kilometer
left over
liter
marked
median
meter
Miami
my
necessary
negative
newspaper
nickels
octagon
paint
pentagon
people
Philadelphia
pictograph
positive
preparing
prism
quarters (coins)
ratio
represent
scale
separate
short
square feet
study
warmest

LEVEL XVI

all
Arabic
billion
bisector
bucket
budget
carved
clothing
concrete
congruent
cornerstone
cross product
cubic units
earns
expenses
family
famous
favorite
fence
food
full
health
history
income
inequalities
lawn
layers
lime
listed
load
method
million
museum
parking
pave
percent
per month
perpendicular
play
playground
pretzel
prize
removal
rent
season
service
snow
sports
state
such
summer
swim
tennis
ten thousand
TV
value
volume
won

LEVEL XVII

air space
approximate
broken line
circular
deducted
delivered
door
driver
during
earth
estimated
exponent
fare
federal
fish
home
living room
monument
proportions
recorded
rolls
rug
salary
shelves
sofa
speed
storm
sundae
tablets (paper)
tank (fish)
taxes
vertical
wall
way
wing
withheld

LEVEL XVIII

allowance
amount
around
bank
calendar
cutting
data
deposit
dimensions
errands
grass
mistake
mode
ordered pairs
portable
primary
rocket
running
simplest
size
source
supplementary
trace
zipper

5TH GRADE

LEVEL 10

I. UNDERSTANDING AND NAMING THE PROPERTIES OF THE OPERATIONS

A. ADDITION

Behavioral Objectives:

1. To identify the commutative, associative and zero properties of addition
2. To use the properties of addition
3. To add multiples of 10, 100, and 1, 000

B. REVIEW AND STRENGTHEN NUMBER FACTS

Behavioral Objectives:

1. Finding sums of many addends
2. To add columns of single digit numbers

C. ADDITION WITH AND WITHOUT REGROUPING

Behavioral Objectives:

1. To add using the short form and more than one grouping
2. To add using money notation
3. To write expanded numerals for standard numerals and vice versa
4. To round numbers to the nearest hundred and thousand
5. To complete equations, open sentences, and tables

D. SUBTRACTION CONCEPTS

Behavioral Objectives:

1. To recognize addition and subtraction as opposite operations
2. To recognize when there is no whole number answer for subtraction
3. To recognize subtraction as finding a missing addend

E. SUBTRACTION WITHOUT AND WITH REGROUPING

Behavioral Objectives:

1. To subtract using the short form where one renaming is necessary
2. To subtract using the short form with more then one renaming
3. To subtract with two numbers less than 1, 000 regrouping twice
4. To subtract thousands with or without regrouping
5. To subtract using zeroes in the larger number
6. To subtract regrouping as many times as necessary
7. To round numbers to the nearest tens (hundreds) in order to estimate a sum or difference

8. The student can round monetary amounts to the nearest 10¢ ($1.00) in order to estimate a sum
9. To make list of change for amounts up to $20

F. PROPERTIES UNDER MULTIPLICATION

Behavioral Objectives:

1. To identify and use the commutative and associative properties of multiplication and the properties of one and zero
2. To use the associative and commutative properties to find products in tens, hundreds and thousands
3. To use the distributive property to solve problems or equations
4. To use the distributive property to find the products

G. MULTIPLICATION (WITHOUT AND WITH REGROUPING)

Behavioral Objectives:

1. To multiply 2 and 3 digit numerals by a 1 digit numeral using the short form
2. Review expanded form to aid in understanding
3. To multiply factors to ten thousands by a 1 digit numeral using the short form
4. To multiply two numbers less than 1,000
5. To multiply two numbers less than 100 with regrouping
6. To multiply numbers with both factors greater than 10 using the short form
7. To multiply using monetary notation
8. To multiply a number expressing a monetary amount less than ten dollars by a whole number less than 10
9. To relate division to the concept of repeated subtraction of the same addend

H. DIVISION CONCEPTS

Behavioral Objectives:

1. Students can recognize that multiplication and division are related-opposite operations
2. Students complete a division within the basic facts
3. A student can use the relationship between multiplication and division to divide by a multiple of 10
4. To use the terms dividend and divisor
5. The student can relate division to the concept of repeated subtraction of the same addend

I. DIVISION (WITHOUT REMAINDER AND WITH REMAINDER)

Behavioral Objectives:

1. To divide using the three steps division *108-109
2. To divide using a multiple of 10 as the first estimate

3. To divide obtaining a remainder greater than zero
4. To divide using a multiple of 100 as the first estimate
5. To check a division with a remainder
6. To divide using a short form with a 2-digit quotient
7. To divide using the short form with quotients of 3 or more digits
8. To divide using the short form when a zero occurs in the quotient
9. To divide when the divisor is a multiple of 10
10. To recognize that in division dividing the dividend and divisor by the same number does not affect the quotient
11. To use this principle in estimating to complete divisions
12. To divide using money notation

J. MATHEMATICAL SENTENCES

Behavioral Objectives:

1. To identify number sentences as equalities or as inequalities
2. To identify an equality as true or false
3. To solve equalities
4. To determine when one number is greater or smaller than another
5. To know the symbols used to indicate greater than or less than

K. PROBLEM SOLVING

Behavioral Objectives:

1. To understand the situation
2. To identify the problem situation
3. To select the necessary facts
4. To recognize the operation for use
5. To write the mathematical sentence
6. To estimate the answer
7. To solve the mathematical sentence
8. To check the results
9. To label the answer

II. UNDERSTANDING FRACTIONAL PARTS OF A REGION

Behavioral Objectives:

1. To identify the numerator and denominator of a fraction
2. To find a fraction to represent the length of a segment, an area of a region, volume of a space, or part of a set
3. Student can associat a fraction with part of a set in comparison with the whole set
4. Student can associate a fraction with a region that has been partly shaded
5. To identify equivalent fractions when regions are used to picture each fraction
6. To add two fractional numbers with like denominators when regions are used to picture each fraction

7. To list a set of equivalent fractional numerals for any fraction
8. To use cross product check to determine whether or not two fractional numerals are equivalent

III. RENAMING MEASURES IN ADDITION AND SUBTRACTION

Behavioral Objectives:

1. To add units of measure with renaming
2. To subtract units of measure with renaming
3. To recognize relationships between miles, yards, feet and inches
4. To convert to yards, feet, and inches
5. To add and subtract lengths in feet and inches
6. To recognize relationships between cups, quarts, and gallons
7. To convert among liquid measures
8. To recognize relationships between ounces, pounds and tons
9. To convert ounces to pounds and pounds to tons
10. To add and subtract pounds and ounces

IV. INTERPRETING CHARTS WITH TWO SETS OF DATA (5) 627-628

Behavioral Objectives:

1. Child will be able to work with comparative data
2. Child can use newspapers and almanacs as sources of data from charts and tables

LEVEL 11

I. ANALYZING FIVE-PLACE NUMBERS BY EXPANDED NOTATION

Behavioral Objectives:

1. To discover the total value of a numeral written in the 10,000's position
2. To develop the reading and writing of five-place numerals with ease
3. To write a numeral using an expanded numeral and a standard numeral
4. To be able to expand five-place numerals three ways

II. UNDERSTANDING IMPROPER FRACTIONS

Behavioral Objectives:

1. To write a fraction for a number greater than one (which is not a whole number) as a mixed numeral
2. To rename whole numbers as fractions
3. To write a mixed numeral in fraction form
4. To change a fraction greater than 1 to a mixed numeral
5. To add fractions whose sum is greater than 1
6. To rename a sum as a mixed numeral and simplify
7. To use the commutative and associative property to solve equations with fractions
8. To add mixed numeral fractions and simplify (sums less than 1)
9. To add mixed numeral fractions (sums greater than 1)
10. To subtract mixed numeral fractions, no regrouping
11. To rename a whole number as a mixed numeral
12. To rename a mixed numeral
13. To subtract mixed numeral fractions with regrouping
14. To subtract mixed numeral fractions with renaming twice

III. READ AND CONSTRUCT TIMETABLES (4) 582-584

Behavioral Objectives:

1. To read and construct timetables
2. To determine time by "moving up the clock" rather than adding denominate numbers
3. To record weeks and months in making a calendar
4. To record significant days on calendar
5. To solve problems involving time charts
6. To read and record dates numerically, such as 6-14-68
7. To use the Fahrenheit scale in using a thermometer
8. To read thermometers of different sizes

IV. ESTIMATING AND USING COMMON MEASURES (4) 567-569

Behavioral Objectives:

1. To estimate linear measure using judgement devices (thumb, hand, span, pencils, handy objects and unit segments)
2. To recognize a diagonal of a four-sided figure
3. To identify characteristics of parallelograms, rectangles and squares
4. To draw a circle and describe some of its features
5. To use a geoboard to represent geometric figures
6. To name and measure diagonals of a parallelogram
7. To recognize a circle, its radius, chord, and diameter
8. To find lengths of a radius and diameter
9. To identify slides and turns
10. To recognize a flip
11. To identify one or more lines of symmetry.
12. To recognize symmetric figures
13. To recognize congruent figures

LEVEL 12

I. COMPARING OTHER SYSTEMS OF NUMERATION TO THE DECIMAL SYSTEM

Behavioral Objectives:

1. To write our numerals for Egyptian numerals
2. To write Egyptain numerals for our numerals
3. To write our numerals for Roman numerals
4. To write Roman numerals for our numerals

II. MULTIPLYING TWO PLACE BY TWO PLACE NUMBERS

Behavioral Objectives:

1. To multiply two numbers less than 1,000
2. To multiply two numbers less than 100 with regrouping
3. To multiply two numbers less than 100
4. To solve word problems requiring multiplication
5. To estimate products by rounding both factors and multiplying

III. APPLYING AVERAGES

Behavioral Objectives:

1. To recall the meaning of an average
2. To compute the average of a set of numbers
3. To solve problems involving averages

IV. RENAMING AND ORDERING FRACTIONS AND DECIMAL FRACTIONS

Behavioral Objectives:

1. To rename with decimals fractional numerals whose denominators are not 10, 100, or 1,000
2. To write fractions in decimal form (tenths, hundredths, thousandths)
3. To read decimals
4. To write decimals in expanded form
5. To write decimals in fraction form
6. To write equivalent decimals for tenths, hundredths, and thousandths
7. To compare decimals, using $>$, $<$, or =
8. To add and subtract decimals expressing tenths, hundredths, and thousandths
9. To solve problems involving decimals
10. To subtract tenths, hundredths, and thousandths with differences less than 1
11. To find differences between decimals with and without renaming

V. RECOGNIZING SOLID GEOMETRIC FIGURES: USING TOOLS OF GEOMETRY

Behavioral Objectives:

1. To recognize figures and their parts
2. To identify physical objects as solids
3. To recongize cylinders, spheres, cubes, cones, and rectangular prisms
4. To find the volume of a rectangular prism by counting
5. To find the volume of a rectangular prism, using a formula
6. To identify some of the properties of a sphere
7. To be able to make models of cylinders and cones and identify some of the characteristics of each
8. To be able to make models of rectangular prisms and cubes
9. The student can determine the number of cubic units that will fit in a rectangular prism
10. To use the cubic centimeter, cubic inch, and cubic yard as units of volume

LEVEL 13

I. UNDERSTANDING FACTORS, PRIME AND COMPOSITE

Behavioral Objectives:

1. To determine the prime numbers less than 25
2. To determine the prime factorization of a number by using a factor tree
3. To determine the common factors of two given whole numbers
4. To make the set of multiples for a given whole number
5. To determine the common multiples and the least common multiple for a given pair of numbers
6. To complete a math lab involving a factor game
7. To find all the factors of any number less than 50
8. To determine whether a given number is prime or composite
9. To use a factor tree to find the prime factorization of a number
10. To find common multiples of two numbers
11. To find the least common multiple of three numbers

II. ADDING AND SUBTRACTING FIVE-PLACE NUMBERS

Behavioral Objectives:

1. To add larger numbers using the short form with more than one regrouping
2. To subtract larger numbers using the short form with more than one renaming
3. To subtract using zeroes in the larger number
4. To estimate sums and differences by rounding

III. CHANGING EQUIVALENT FRACTIONS TO HIGHER AND LOWER TERMS

Behavioral Objectives:

1. To find an equivalent fractional numeral for a given fraction
2. To list a set of equivalent fractional numerals for any fraction
3. To find an equivalent fractional numeral with a specific numerator or denominator
4. To use the cross product check to determine whether or not two fractional numerals are equivalent
5. To determine whether or not a given fractional numeral is in its simplest form
6. To find the simplest form of any fraction
7. To identify and write different names for a fractional number when the fractional numbers are represented by regions
8. To rename fractional numbers by multiplying the numerator and the denominator by the same zero number

IV. CALCULATING AREA AND PERIMETER OF REGIONS

Behavioral Objectives:

1. To determine the perimeter of a polygon
2. To determine the area of a rectangle by counting square units
3. To determine the area of a rectangular region by multiplying the number of units in its length by the number of units in its width
4. To use a formula to compute the area of a rectangle
5. To solve problems with the square inch, the square foot, and the square yard
6. To solve problems relating to the concept of area
7. To apply the idea of area to triangular and para-parallelogram regions
8. To use the formula to find the perimeter of a rectangle and a square
9. To draw a diagonal in a rectangle or square to form right triangles
10. To find the area of a right triangle as half the area of a rectangle

V. EXAMINING THE PROPERTIES OF POINTS, LINES AND PLANES

Behavioral Objectives:

1. To identify parallel and intersecting lines
2. Given the names or figures for point, line, segment, and ray, the child will be able to identify the figures and use symbols to label them
3. Given two segments, the child will be able to determine whether or not they are congruent
4. Given a segment to measure, the child will be able to select a unit and use it to measure the segment
5. To recognize that a point is represented by a dot and labeled with a capital letter
6. To recognize that a line is unending and labeled by AB
7. To recognize that two different line segments cannot intersect in more than one point
8. To be able to identify angles and rays
9. To label and name an angle
10. To be able to recognize a right angle

LEVEL 14

I. INTRODUCING BASE 5 SYSTEM OF NUMERATION

Behavioral Objectives:

1. To give the value of a base five numeral
2. To write a base five numeral for a given set
3. To identify the value of a 3- or 4-digit base five numeral by writing an expanded numeral
4. To write 3-digit base five numerals for given sets
5. To rename base five numerals as base ten numerals

II. UNDERSTANDING POSITIVE AND NEGATIVE NUMBERS

Behavioral Objectives:

1. To read and write positive and negative integers
2. To give the opposite of an integer
3. To use in everyday situations

III. DIVIDING BY TWO PLACE NUMBERS

Behavioral Objectives:

1. Given division problems involving 2-digit divisors and quotients, find the quotients by estimating and using the long method
2. Given division problems involving 2-digit divisors and quotients, find the quotient by estimating and using a shortcut method
3. To divide using the short form with 3-digit quotients and remainders
4. To divide by a 2-digit divisor with zeroes in the quotient
5. To divide using money notation

IV. ADDING AND SUBTRACTING FRACTIONS WITH COMMON DENOMINATORS

Behavioral Objectives:

1. To add and subtract with fractions having common denominators
2. To add and subtract fractional numbers with like denominators and to write the resulting sum or difference in simplest form
3. To solve word problems involving the addition and subtraction of fractional numbers less than 1

V. RECOGNIZING, MEASURING AND CONSTRUCTING PLANE ANGLES

Behavioral Objectives:

1. To name angles by using standard angle notation
2. Given two angles, the child will be able to determine whether or not they are congruent
3. Given an angle and a unit angle, measure the angle in terms of the unit angle
4. Given two angles, determine whether or not they are congruent
5. Given an angle unit and suitable materials, make and use a protractor
6. Given a triangle, identify it as isosceles, equilateral, scalene, or right
7. Given tangram pieces, use them to form polygonal shapes

LEVEL 15

I. USING ONE PLACE DIVISOR FOR SHORT DIVISION

Behavioral Objectives:

1. To divide using a short cut form with a 2-digit quotient
2. To divide using the short form with 3 or more digits
3. To divide using short form when zero occurs in the quotient
4. To divide when the dividend represents a monetary amount

II. ADDING AND SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS; MULTIPLYING MIXED FRACTIONS

Behavioral Objectives:

1. To determine a common denominator
2. To use the concept of common denominators in comparing two fractional numbers to determine which is greater (or lesser)
3. To find the least common denominator for a pair of fractions
4. To add fractional numbers with unlike denominators
5. To add or subtract fractional numbers with a sum less than one where one fractional number needs renaming
6. To add or subtract two unit fractional numbers with a sum less than one where both fractional numbers need renaming
7. To analyze and soive simple verbal problems involving addition and subtraction of fractional numbers
8. To add or subtract fractional numbers with sums less than one where both fractional numbers need renaming
9. To rename a sum greater than one as a mixed numeral
10. To rename answers to addition and subtraction exercises in simplest form
11. To add and subtract with mixed numerals by finding a common denominator
12. To add and subtract with pairs of mixed numerals and simplify the fractional part of the answer
13. To multiply any whole number by a fraction
14. To multiply a fraction by a whole number and simplify
15. To solve mini problems
16. To identify examples of the associative and commutative properties and the property of one
17. To use the commutative and associative properties to solve equations by inspection
18. To multiply a fractional number and a whole number with a whole number product using set illustrations to assist him
19. To multiply a fractional number less than one and a whole number

III. EXPRESSING RATIOS AS FRACTIONS

Behavioral Objectives:

1. To write a ratio in fraction form
2. To write a fraction in ratio form

3. To find one or more ratios equivalent to a given ratio
4. To find an equivalent ratio in which one term is already specified
5. To write a short story to fit a given ratio, picture, or number sequence
6. Given a pair of numbers, write a ratio to compare one of the numbers to the other
7. Given a map with a fractional scale, find distances between specified points on the map

IV. INVESTIGATING METRIC MEASURES

Behavioral Objectives:

1. To use a variety of nonstandard units to measure length
2. To use a standard unit (cm) to measure the length of an object to the nearest unit
3. To use standard units (cm and inches) to measure the length of an object; the student will recognize that when measuring an object, the longer the unit used, the smaller the number in measurement; the student will be able to use the relation that 1 inch is about 2 1/2 cm in length
4. To use a standard unit (cm) to measure the length of an object, to the nearest unit
5. To draw line segments of a length given in centimeters and decimeters
6. To use a standard unit (cm) to measure the length of an object, to the nearest unit. The student will be able to draw objects of a length given in centimeters.
7. To change a given measure to an equivalent one using centimeters and decimeters
8. To draw line segments of a length given in centimeters
9. To use a standard unit (cm) to measure the length of an object to the nearest unit
10. To draw a line segment of a given length
11. To change a given measure to an equivalent one using centimeters, decimeters, and meters
12. To change a given measure to an equivalent one using centimeters decimeters, and meters. Student will be able to compare measures given in inches, feet, and meters.
13. To measure line segments to the nearest 5 equivalent one using millimeters and centimeters. Student will be able to draw objects of a length given in millimeters and centimeters.
14. To change a given measure to an equivalent one in millimeters, centimeters, decimeters, and meters, using decimals

V. UNDERSTANDING MEDIAN

Behavioral Objectives:

1. To rank measures from lowest to highest
2. To count up to the middle measure
3. To select the element just above the middle
4. To find the "two middle elements"
5. To find the "mean"
6. To determine the difference between "mean" and "median"

6TH GRADE

LEVELS 16, 17, AND 18

ALL PAGES LISTED, UNLESS OTHERWISE STATED, ARE FROM SCHOOL DISTRICT OF PHILADELPHIA INTERMEDIATE MATHEMATICS GUIDE, LEVELS X-XVIII

A. NUMERATION — 2-3 weeks

1. Review number/numeral concept, Modern Math, p. 30
2. Decimal system of numeration, Modern Math, pp. 30-31
   a. Develop understanding of number beyond 6 places, p. 31
   b. Reading and writing numerals beyond 6 places, pp. 31-37
   c. Powers of numbers - exponents
3. Other Systems of Numeration
   a. Roman numeral - extend to MM, pp. 37-39, Modern Math, Grade 5, part 1, p. 28
   b. Base 5 - Quinary system, pp. 39-42, Modern Math, Grade 5, part 1, pp. 29-30
   c. Base 2 - Binary system, pp. 42-48

B. WHOLE NUMBERS — 6-8 weeks

1. Review and Strengthen Number Facts
2. Addition
   a. Review properties
      (1) Commutative, p. 223, Modern Math, Grade 5, part 1, p. 9
      (2) Associative, p. 224, Modern Math, Grade 5, part 1, p. 9
      (3) Identify elements, p. 224
   b. Maintain computational skills, pp. 224-225
   c. Extending rounding off numbers, pp. 226
3. Subtraction
   a. Review subtraction concepts, p. 226
   b. Maintain computation skills, p. 226
      Use expanded notation to analyze operation, pp. 161-162, Level XIII, Modern Math, p. 20
4. Multiplication
   a. Review properties of multiplication, p. 226, pp. 163-169, Modern Math, p. 21
   b. Multiplication by three place numbers, pp. 171-172
   c. Lattice multiplication, pp. 229-232, Modern Math, Grade 5, part 2, pp. 9-10

5. Factors and Primes

   a. Develop vocabulary of factor and product, product expression, pp. 172-174
   b. Eratosthenes Sieve, pp. 174-176
   c. Factoring factorization, pp. 176-180
   d. Fundamental theorem of arithmetic, p. 180
   e. Common factors, pp. 181-182
   f. Greatest common factor of two numbers, p. 183
   g. Least common multiple of two numbers, p. 183, Modern Math, Grade 5, part 2, p. 12

6. Division

   a. Review and extend understanding of concepts, pp. 185-187, Modern Math, p. 23
   b. Division as finding the missing factor, p. 188
   c. Division by 2-place divisors, pp. 190-200, Modern Math, Grade 5, part 2, p. 5
   d. Short division form, pp. 201-202

7. Positive and Negative Integers

   a. Relate to set of whole numbers, pp. 202-204
   b. Functional application, pp. 204-205
   c. Symbols, pp. 205-206
   d. Order relations, pp. 206-209

8. Mathematical Sentences

   a. Review symbols, pp. 209-210
   b. Literal numbers, pp. 210-211
   c. Review and extend, pp. 212-215

9. Problem Solving

   a. The problem: to understand the situation, pp. 215-216, Modern Math, Grade 5, part, p. 4
   b. The ability to identify problem questions, pp. 216-220

C. THE RATIONAL NUMBER SYSTEM - FRACTIONAL NUMBERS 6-8 weeks

1. Common Fractions

   a. Review understandings of previous year, pp. 438-442, Modern Math, Grade 5, part 2, p. 13
   b. Equivalent fractions, pp. 442-446, Modern Math, pp. 15-16
   c. Equivalence and order relations, pp. 446-453
   d. Addition, pp. 458, Modern Math, p. 20
   e. Subtraction, p. 458, Modern Math, p. 21
   f. Multiplication, pp. 458-470, Modern Math, p. 29
   g. Division, pp. 471-479, Modern Math, p. 30
   h. Properties, pp. 383-389

2. Decimal Fractions

   a. Extension of place value to include thousandths, pp. 394-400
   b. Review concept of decimal fraction as another name for fractional number, pp. 400-408
   c. Order relations and equivalence, p. 408
   d. Reading and writing decimal fractions to thousandths, p. 409
   e. Addition of tenths, hundredths, pp. 410-419
   f. Subtraction of tenths, hundredths, pp. 420-425
   g. Decimal fractions and U. S. money, pp. 426-429

3. Ratio

   a. Develop an understanding of ratio by notion of correspondence, pp. 429-432
   b. Ratio expressed in fractional form, pp. 433-434
   c. Reading and writing ratios, pp. 435-436

4. Percent

   a. Develop understanding meaning of percent, pp. 544-548
   b. Rename common fractions, decimal fractions ratios as percent, pp. 549-553
   c. Use of equations in percent, pp. 554-557
   d. Graphs and diagrams, pp. 558-559

5. Problem Solving, pp. 437

D. MEASUREMENT — 4-6 weeks

1. Linear Measurement

   a. Extend concepts of previous levels, introduce rod, p. 601
   b. Extend work of scale drawing, pp. 601-603
   c. Use of graph paper in scale drawing, pp. 603-604

2. Square Measurement

   a. Introduce concept of area as a region, p. 485
   b. Compare areas by estimation, use of devices and square unit, p. 585
   c. Concept of square inch, foot, and yard, pp. 586-587
   d. Calculation of areas through use of linear measure. Limit to squares and rectangles, pp. 588-590
   e. Denominate numbers, p. 591

3. Weight, Dry Measure, Liquid Measure

   a. Continue work with measures taught previously. Extend weight to include 1 ton, p. 593
   b. Teach peck and bushel, p. 593
   c. Related work with denominate numbers, p. 593

4. Other Systems of Measurement: Metric

   a. Awareness of metric system; familiarity with meter, kilometer, gram, kilogram

5. Time

   a. Extend time zones around world, introduce International Date Line, p. 609
   b. Twenty-four hour clock, p. 609
   c. Denominate numbers, p. 610

6. Temperature

   a. Read thermometers to fractions of a degree, extend work with thermometer as a number line, p. 613

7. Volume

   a. Concept of volume as applied to a solid region, p. 613
   b. Experiences comparing volume without measurement, p. 614
   c. Developing units for determining or estimating volume, p. 614

E. ORGANIZING AND INTERPRETING DATA — 2-3 weeks

1. Graphs

   a. Introduce bar graphs showing two sets of data, pp. 637-639
   b. Introduce multi-bar graphs, p. 639
   c. Introduce divided bar graphs, p. 639
   d. Extend concept of the two axes on line graphs, p. 640
   e. Make frequency distributions and histograms, p. 640
   f. Extend work with pictograms and introduce graphic representations of maps, p. 643
   g. Introduce circle graphs (Relate to work with fractions and percent, p. 645)

2. Tables and Charts

   a. Extend usage, apply to functional situations, p. 648

3. Statistics

   a. Review mean and median, p. 648
   b. Introduce mode, p. 649

4. Graphing Numbers and Ordered Number Pairs

   a. Graphing numbers on number line, p. 650
   b. Graph ordered pairs: Introduce the use of two number lines, p. 651
   c. Concepts of x and y axes, p. 651
   d. Concepts of quadrants and practice graphing in all four quadrants. Use game - Tic-Tac-Toe

F. GEOMETRY 3 weeks

1. Extend study of plane figures

   a. Review geometric shapes previously taught, p. 721
   b. Polygons, p. 721
   c. Triangles, pp. 722-724
      (1) Right triangles, p. 723
      (2) Acute triangles, p. 724
      (3) Obtuse triangles, p. 724
   d. Quadrilaterals, p. 726
      (1) Rectangles, p. 726
      (2) Squares, p. 728
   e. Pentagons, p. 728
   f. Hexagons, p. 730
   g. Octagons, p. 730

2. Solid Figures

   a. Prisms, pp. 736-739
      (1) Rectangular prisms, p. 739
      (2) Cubes, p. 740
      (3) Triangular prisms, p. 741
   b. Pyramids, pp. 742-744
   c. Cylinders, pp. 744-745
   d. Cones, pp. 746-748
   e. Spheres, pp. 748-749

3. Using Tools of Geometry

   a. Construct an angle, p. 750
   b. Bisect an angle, pp. 751-752
   c. Measure angles, p. 753

Vocabulary Levels X-XVII, Text to be used by Teacher - Holt School Mathematics, Holt, Rinehart and Winston, Inc.

LEVEL 6

A. Numeration - pp. 2-6, pp. 12-15, pp. 16-19

B. Whole Numbers - pp. 8-11, pp. 26-29, pp. 58-63, pp. 78-89, pp. 140-151

C. Rational Numbers - pp. 154-162, pp. 166-169, pp. 170-173, pp. 192-196, pp. 198-201, pp. 210-214, pp. 278-289

D. Measurement - pp. 246-251, pp. 254-256, pp. 256-259

E. Organizing and Interpreting Data - pp. 320-329

F. Geometry - pp. 108-115, pp. 118-119, pp. 124-125, pp. 132-133

AN OVERVIEW OF SEVENTH GRADE MATHEMATICS

When we associate reading with mathematics we are usually thinking of word problems. But children must also read numerals, mathematical symbols, mathematical sentences, directions, and pictorial diagrams.

Any system of formalized signs, symbols, gestures or the like, used or conceived as a means of communicating thought, emotion, and so on, must be taught from the same point of view as the language of mathematics.

Acquiring a basic oral vocabulary in mathematics is important when a student writes down a mathematical equation and talks about what has been written down in a meaningful way. Therefore, outlined below is the basic curriculum for seventh grade pupils in mathematics. The ultimate objective is to have the students master the basic computational skills and preserve the spirit of multi-sensory learning.

7TH GRADE

I. Systems of Numeration

A. Number and Numerals

1. History of Numerals: Greek, Roman, etc.

B. Our Numeration System: Base 10 (Metric)

1. Expanded Notation: Place value

a. Read and write large decimal numerals
b. Round off numbers: decimal, whole
c. Change from decimal numeration to expanded form

Example: $236 = 200 + 30 + 6$
$= (200) + 3\ (10) + 6\ (1)$
or
$236 = 2(100) + 3(10) + 6(1)$
$= 200 + 30 + 6$

C. Other Systems of Numerations

1. Binary, Base 2
2. Quinary, Base 5

II. Rational Numbers

A. Sets

1. One to one correspondence
2. Equal and equivalent sets
3. Finite and infinite sets
4. Sub sets
5. Union and intersection

a. Empty and null
b. Disjoint sets
c. Venue diagrams

B. Line qualities - Use of Symbols

1. More than 7
2. Less than 6
3. Equivalent to = $(3 + 2) = (1 + 4)$
4. More than or equivalent to $\geqq$ $(7 + 3 \geqq 9)$
5. Less than or equivalent to $\leqq$ $(7 + 3 \leqq 10)$
6. Not more than $\not>$ (implying $\leqq$)
7. Not less than $\not<$ (implying $\geqq$)
8. Not equivalent to $\neq$ (implying $<$ or $>$) or
($<$ and $>$)

C. Extend use of number line

III. Operations - Additions and Subtraction

A. Review the Properties - Closure, Associative, etc.

IV. Operation by Multiplication and Division

A. Review the Properties - Distributive, etc.

V. Number Theory

A. Review Prime and Composite Numbers

B. Tests for Divisibility as by twos, (odds, evens) etc. (threes, fives) etc.

VI. Rational Numbers and Sets of Fractional Numbers

A. Definition of Rational Numbers

1. A set of equivalence classes as (2/4, 4/8, 5/10, etc.) (provided the divisor 0)

B. Number line to be used extensively with rational numbers

C. Common Fractions

D. Equalities and Inequalities

1. Size order, use of cross multiplication
2. Review the properties

VII. Decimal Fractions

A. Fractional equivalents

B. Rounding off

C. Expanded process using decimal fractions

1. Addition and subtraction
2. Multiplication
3. Division

Example: $3.5\overline{)7.65} = \frac{7.65}{3.5} \times \frac{10}{10} = \frac{76.5}{35} = 35\overline{)76.5}$

VIII. Ratio - Review Forms as:

1. Compared to a:b
2. (related to $\frac{a}{b}$)
3. Like quantities (2 ft. : 3 ft.)
4. Unlike quantities (3 miles per hour; 2 doz. for 75¢)

5. Rate pairs
6. Proportional equation
   (a) equivalent ratio
   (b) "means" and "extremes" product
7. Open sentence solving

IX. Percent

A. Concept

B. Use of the equation ruler

C. Practical applications

1. Simple interest
2. Discount
3. Commission
4. Percent of error

X. Geometry

A. Non-Metric Geometry as (point, line, plane, etc.) (may be physically represented)

XI. Metric Geometry

A. Measuring Angles

1. Unit of measure

a. Unit angle
b. Standard angle = 180° fit into a semicircle
c. Degree - unit of measure

B. Tool of Measure

1. Protractor

C. Perimeter

1. Quadrilaterals

a. Discovery approach (use concrete objects) (all types with formula)
b. Triangles (all types with formula)

2. Regular Polygons

D. Circumferences

1. History of

E. Area

1. Plane figures
2. Solids - include lateral surface (overface area)

F. Volume

1. Cylinders
2. Prisms

XII. Construction - Using compass, protractor (and straightedge)

A. Lines

1. Perpendicular lines
2. Given line
3. Parallel lines
4. Bisecting lines

B. Angles

1. Given angles
2. Bisecting angles

C. Polygons

1. Vertices, diagonals, interior angles and their relationship when measuring angles

D. Graphs

XIII. Measurement

A. History of Measurement

B. Units of Measure (standard measure units)

1. Square measure - cubic (etc.)

C. Accuracy of Measurement (tolerance)

BIBLIOGRAPHY

1. Nichols, Anderson, Dwight, Flournoy, Kalin, Schuluep, Simon, HOLT SCHOOL MATHEMATICS, Holt, Rinehart and Winston, Inc., 1974

2. Denholm Hankins, Herrick, Vojtko, MATHEMATICS FOR INDIVIDUAL ACHIEVEMENT, Houghton Mifflin Co., Boston, 1974

3. Cech, Joseph and Seltzer, Carl, WORKING WITH COLOR RODS IN METRIC MEASUREMENT, METRIC LENGTH, Schaumburg (Ill.) Elementary Schools, 1974

4. School District of Philadelphia, INTERMEDIATE MATHEMATICS GUIDE, LEVELS X-XVIII

5. HOLT SCHOOL MATHEMATICS, TEACHER'S EDITION, Holt, Rinehart and Winston Inc., 1974, Sixth Grade Level

6. Continental Publications Inc., MODERN MATHEMATICS, Parts 1 and 2 for Grade 5 - Duplicated Materials

SOCIAL STUDIES

General Objectives*

- to teach concepts as opposed to the accumulation of facts
- to prepare students for life in a rapidly changing, technological society by stressing the basic skills necessary to effectively meet the challenge of such a society
- to focus on values which deal with individual rights and individual responsibilities in a democratic society
- to introduce, examine, and evaluate concepts that are interdisciplinary and interdisciplinary in nature
- to show the role and contributions of ethnic, racial, and religious groups that compose American society
- to develop the pragmatic classroom situation which is designed to provide students with experiental opportunities in the areas of career development and voter education
- to use varied instructional media, techniques and materials that allow for individual differences in learning styles

*Paraphrased from A Social Studies Resource Booklet for the 70's.
Office of Curriculum and Instruction, The School District of Philadelphia

NOTES:

- The members of the Social Studies Department have consented to placing related Social Studies materials from their personal libraries on file in the I. M. C. These materials may be borrowed for teacher reference.
- Learning packets will be developed throughout the school year on each unit. These learning packets will be kept in a central location for general use by the staff.

5TH GRADE

Skills to be developed: comparing, contrasting, grouping, observing, hypothesizing, listing, generalizing (from a case study), recalling, reading pictures, reading maps, learning directions

I. Hypotheses — 3-4 weeks

Vocabulary: hypothesis, propaganda, fact, opinion, current event

A. Propaganda vs. Fact

1. History is a chronological record of significant events. It is the historian's point of view, an interpretation

2. All history is not fact

B. Current Events

1. Two people may have different points of view on the same subject

References: newspapers, magazines, TV and radio newscasts, textbooks dealing with the same story or historic event

II. Map Skills — 6 weeks

Vocabulary: map, globe, direction, North Pole, South Pole, equator, latitude, longitude, legend, symbol, key, hemisphere, continent, world, scale, atlas, sphere, degree, meridian, prime earth

A. Map terms

B. Latitude

C. Longitude

D. Climatic Zones

References: Basic social studies textbooks, maps, globes, Falcon Kits Learning Packets to be developed and kept on file with the Chairman of the Social Studies Department.

III. Discovery and Exploration — 4 weeks

Vocabulary: myth, discovery, explorer, theory, tribe, colony, settlement, trade route, sea, ocean, bay, river, gulf, mountain, conquer, governor, mainland, waterway, government, state, united, identify, slavery, voyage, claim, search, en route, missionary, charter, rights, servant, indentured, assembly, represent, persecution, compact, company

A. Atalantas and Mu--Myth or Fact

1. At one time was the earth one continent?

B. The Indians

1. Who were they? How did they reach the shores of Western Hemisphere?

2. Theories
   a. Crossed the Bering Strait
   b. Papyrus rafts

C. Moors

1. A wandering tribe out of Africa who came to the shores of America prior to the Vikings

D. Vikings

1. Leif Ericson
2. Eric the Red

E. Columbus

1. See textbook

F. Spanish explorers

G. Portuguese explorers

H. English explorers

I. French explorers

J. Dutch explorers

References: Basic social studies textbooks, maps, globes, Edcon Kits (Discovery and Exploration) Learning Packets to be developed and kept on file with the Chairman of the Social Studies Department.

IV. Colonization of the Western Hemisphere — 8 weeks

NOTE: Incorporate all information--compare and contrast--DO NOT STUDY GROUPS INDEPENDENTLY OF EACH OTHER.

Vocabulary: Island, mountain, strait, conquistador, en route, area, city, religion, region, cultivate, crop, leadership, historical, slave, enforce, represent, district, freedom, saga, canyon, Orient, natural, resource

A. Spanish

1. Slavery began with Bishop Bartholome de Las Casas' appeal to the Spanish crown to import Africans to replace Indians (1517 A. D.)

B. Portuguese

C. English - (slavery)

D. French

E. Dutch and Swedish

F. Greek and Roman

NOTE: During this unit the phenomenon of slavery should be examined (refer to unit #1 - propaganda)

References: Texts: America, Up from Slavery (I. M. C.), Before the Mayflower (I. M. C.) Learning Packets to be developed and kept on file with the Chairman of the Social Studies Department.

V. Conflict

Vocabulary: conflict, war, revolution, doctrine, revolt, rebellion, abolish, aggression, annex, allies

NOTE: This unit deals with CONFLICT - compare and contrast these conflicts to each other, rather than studying each individually. Slave revolts took place in most revolutions with the exception of the French Revolution.

A. Indian Wars

B. French and Indian Wars

C. Spanish (Haiti, Dominican Republic, Mexico) Wars

D. American Revolution

E. War of 1812

1. Monroe Doctrine

F. Tripoli War

G. Civil War

H. Spanish - American Wars

I. Mexican War

J. World War I

K. World War II

L. Korean Conflict

M. Vietnam War

N. Cold War - Refer to unit 1 on outline

References: See any basic social studies text (example: America) I. M. C. for independent study

VI. Government 12 weeks

Vocabulary: Constitution, candidate, capital, election, empire, republic, monarch, principality, socialism, communism, totalitarian, democracy

NOTE: Ideal unit for group work

A. List types of Government. Break class into groups for research and panel discussions. Compare and Contrast:

1. Empire
2. Republic
3. Monarchy
4. Principality
5. Socialism
6. Communism
7. Totalitarianism
8. Democracy (concept - not United States history)
9. Plutocracy
10. Oligarchy

References: See any basic social studies text, I. M. C. for independent study. Learning packets will be developed and kept on file with the Chairman of the Social Studies Department.

6TH GRADE

Skills to be developed: comparing, contrasting, grouping, observing, hypothesizing, listing, generalizing, recalling, reading maps, evaluating, making judgments

I. Hypothesis 2 weeks

Vocabulary: hypothesis, propaganda, fact, opinion, current event, stereotype

A. Propaganda vs. Fact

1. History is a chronological record of significant events. It is the historian's point of view, an interpretation
2. All history is not fact

B. Current Events

1. Two people may have different points of view on the same subject
2. Use various media to report on the same event

References: newspapers, magazines, TV and radio newscasts, textbooks dealing with the same story or historic event

II. Map Skills of Latin America and Canada — 6 weeks

Vocabulary: altitude, elevation, sea level, parallel, distance, weather, climate, season, torrid, tropic, atmosphere, temperature, arctic, antarctic, polar, universe, circumference, projection, relief, precipitation

A. Latitude and Longitude

1. Latin America and Canada in relation to the world
2. Latin America and Canada in relation to the Western Hemisphere
3. Latin America and Canada in relation to the Equator
4. Climatic Zones

References: Texts - Latin America and Canada, Cambridge Workbooks, Maps Unfold the World. Maps, globes, etc.

III. Dominance Conflict

Vocabulary: dominance, conflict, war, revolution, doctrine, revolt, rebellion, abolish, aggression, annex, allies

NOTE: This unit deals with DOMINANCE (Conflict) - compare and contrast these nations in their struggle for dominance, rather than studying each individually.

A. United States, England, France

B. England

C. France

D. Spain

E. War of 1812 - United States becomes a world power after war with England for the second time

*Suggestion - Use time line

References: Use basic social studies texts, for teacher reference use, We the People (8th grade text)

IV. Industrial Revolution (use independent study for inventions)

Vocabulary: factory, patent, crafts, union, agrarian, apprentice, craftsman, journeymen, invention, industrial, labor, demography, manumission

A. What changed the world. . . the zipper, cotton gin (slavery), sewing machine?

B. Effect upon man and the phenomenon of slavery

1. Connected the United States
2. East meets West faster - transportation
3. Opened new territory
4. New jobs
5. Economic gain in the North and South
6. The United States changed from an agrarian to an industrial society
7. Urban vs. rural slavery
8. Northern vs. Southern slavery

*Suggestion - an opportune time to bring in outside speakers, parents

References: See basic social studies texts - use I. M. C. for references and books on inventors

V. Government in Latin America and Canada — 4 weeks

Vocabulary: Review grade 5 list on Government; nation, national boundary, political

*This unit should be completed by the end of December

References: Use basic social studies texts (Latin America and Canada, The Western Hemisphere, Region of the Western Hemisphere

VI. Cultural Groups in Latin America and Canada — 6 weeks

Vocabulary: race, ethnic group, immigration, migration, stereotypes, myths, prejudices

NOTE: An excellent time to review unit 1 (hypotheses)

A. Minority Groups in the Western Hemisphere

1. Portuguese
2. Spanish
3. French
4. French Canadians
5. West Indians
6. Chicanos
7. Anglo-Saxons
8. Indians (Aztec, Inca, Toltec, American)
9. Blacks
10. Jews

References: Use basic social studies texts, Ethnic Studies Guide, The World of Africans and Afro-Americans, The Black Experience in America from The School District of Philadelphia.

VII. Comparisons of Regions of the Western Hemisphere — 10 weeks

Vocabulary: regions, landforms, topography, size, geography, ecology, minerals, resources

A. Landforms

B. Topography (volcanoes, etc.)

C. Water bodies

D. Mineral Resources (South American sugar cane, rubber, coffee, silver, gold, tin, cocoa, fruits, etc.) Other natural vegetation, forest, farm, industrial, oil, animal husbandry

References: Cambridge Work-A-Text, Maps Unfold the World and other basic social studies texts

7TH GRADE

Skills to be developed: analyzing, comparing and contrasting, evaluating, inferring, interpreting, making hypotheses, observing, recalling, using maps

I. Hypotheses — 2 weeks

Vocabulary: See unit 1 - Grade 5

A. Propaganda vs. Fact

1. History is a chronological record of significant events. It is the historian's point of view, an interpretation
2. All history is not fact

B. Current Events

1. Two people may have different points of view on the same subject
   a. Use various media to report on the same event

C. Myths

1. At one time the entire Eastern Hemisphere was connected (Why Australia was not discovered until 1529 by Captain Cook)

References: newspapers, magazines, TV and radio newscasts, various textbooks dealing with the same story or historic event

II. Map Skills — 6 weeks

Vocabulary: review vocabulary for unit 2 in Grades 5 and 6, cardinal, ordinal, primary, intermediate, imaginary, autumnal, equinox, zone, current, cartography, compass, projection, graphic, diameter, landform, plains, plateau, Mercator

A. Use map skills to study entire world

1. Stress vocabulary and actual map usage

References: Use basic 7th grade geography texts, maps, globes, etc. Learning Packets are being developed and will be kept on file with the Chairman of the Social Studies Department.

III. Ethnic Groups — 16 weeks

Vocabulary: nomadic, nomad tribes, culture, custom, religion, government, assimilation, famine, ethnic, urban, rural

A. Ethnic Groups in the Eastern Hemisphere

1. Take the ethnic groups of the Western Hemisphere and trace back to their point of origin - find out why they came to America (use much INDEPENDENT work) culture, dress, religion, government, food

a. Europeans
b. Scandinavians
c. Slavics
d. Orientals
e. Africans
f. Mid-Easterners (Arabs, Indians, Lebanese, etc.)
g. South Easterners
h. Australians

B. Cultural Regions of the Eastern Hemisphere

1. Topography of the land

References: Tuesday Magazine reprints; Ethnic Study Guides, The School District of Philadelphia; teacher references in I. M. C.; The Other American

IV. Dominance/Conflict

Vocabulary: Review grade 5 vocabulary list on conflict

A. Governments

1. Socialism
2. Communism

a. Rise of Russia as a world power

3. Imperialism

a. Effect of European imperialism on Africa and Asia; colonization of Africa - slave trade

4. Capitalism

References: Use basic social studies texts, reference books for teachers in the I. M.C. on socialism, capitalism, etc.

V. Products 3 weeks

Vocabulary: import, export, products, manufacture, resources

A. Exports and Imports

1. Show in relation to world powers (dominance)

B. Natural Resources

1. Show in relation to world powers (dominance)

C. Consumption

1. Destruction of Indians by colonists who created shortages*

Resources: Use basic texts: Latin America and Canada, Eastern Hemisphere, use I. M. C. books on trade

VI. Influence of the Eastern Hemisphere on the Western Hemisphere 4 weeks

Vocabulary: See vocabulary list on Cultural Regions of the Eastern Hemisphere (Unit 3)

A. Religion

B. Immigration

C. Culture

Resources: Use basic texts: Latin America and Canada, Eastern Hemisphere, and Ethnic Study Guides from the School District of Philadelphia.

*Democracy in America

8TH GRADE

Skills to be developed: analyzing information, comparing and contrasting, evaluating, generalizing, hypothesizing, inferring, interpreting pictures, observing, reading diagrams and charts

I. Hypotheses

Vocabulary: hypotheses, propaganda, fact, opinion, current event

A. Propaganda vs. Fact

1. History is a chronological record of significant events. It is the historian's point of view, an interpretation

2. All history is not fact

B. Current Events

1. Two people may have different points of view on the same subject

a. Use various media to report on the same event

References: newspapers, magazines, TV and radio newscasts, textbooks dealing with the same story or historic event

II. The Civil War — 8 weeks

Vocabulary: rebellion, reconstruction, carpetbagger, scalawags, spoils, states' rights

A. Causes

B. Outcomes (Reconstruction)

NOTE: Good time for independent work

1. 40 acres and a mule
2. Scalawags and Carpetbaggers
3. The changes in government as a result of the war
4. Radical
5. Blacks in government
   a. P. B. S. Pinchback
   b. John Russwurm
   c. Samuel Cornish
   d. Freedmen's Bureau
6. Jim Crow laws

References: Use basic texts: We the People, America; use I. M. C. for reconstruction and biased textbooks showing North's point of view and South's point of view (relate to unit 1).

III. Dominance — 8 weeks

Vocabulary: mercantilism, free trade, imperialism, capitalism, monopoly, trust, antitrust, industrial revolution, corner

NOTE: An ideal unit for use by entire team; bring in Ada Lewis Enterprises - Independent Study

A. Mercantilism

B. Free Trade

C. Imperialism

D. Capitalism

E. Monopoly

F. Trust

G. Antitrust

H. Hanna

I. Morgan

J. Carnegie

K. National Debt

L. Gross National Product

M. Rockefeller

N. Standard Oil

O. Industrial Revolution

P. Inventions of the automobile and the airplane

Q. The rise of the Ford family

References: Use basic social studies texts, I. M. C. (extensively)

IV. Conflict — 4 weeks

Vocabulary: Review grade 5 vocabulary list on Conflict.

A. World War I

1. Causes

a. Nationalism
b. Alliances
c. Diplomacy
d. Imperialism
e. Economic robbery and rivalry
f. Assassination
g. Idealism

2. Battles

a. Where they occurred

3. Outcomes

4. Woodrow Wilson

a. The League of Nations - how and why it failed

References: Basic text - We the People. Use I. M. C. extensively

V. Economic Cycle (start with recovery after World War II) 2 weeks

Vocabulary: corporation, labor, strike, reform, monopoly, depression, act. recovery, inflation, recession, prosperity

A. Recovery

B. Inflation

C. Recession

D. Depression

E. Prosperity

F. Presidents involved

References: Basic textbook and reference section of I. M. C.

VI. Unions 4 weeks

Vocabulary: Review vocabulary from unit 3 (Dominance - grade 8), union, journeymen, apprentice, guilds, master-craftsmen, A. F. of L., C. I. O., sweetheart contracts, closed shop, open shop, scab, boycott

A. The Rise of Labor Movements

B. Strikes

C. Journeymen and Apprentices

D. Guilds

E. Master craftsmen

F. The American Federation of Labor

G. Congress of Industrial Organizations

Suggestion: Utilize term paper

References: Basic textbooks, Labor Union: Progress and Promise, The School District of Philadelphia; I. M. C. sources

VII. Immigration 2 weeks

Vocabulary: Review Unit 3, grade 7 (Ethnic Groups)

NOTE: This unit is a general review of Ethnic Groups studied in grade 7. Use the same outline and references.

VIII. World War II (Independent Study) 4 weeks

Vocabulary: Review grade 5, vocabulary list on Conflict

A. Causes (Panel Discussions)

1. Nine new European nations after 1945

References: I. M. C.

IX. The United Nations (Independent Study) 1 week

References: Story of the United Nations; write to World Affairs Council and to the United Nations

X. The Cold War 3 weeks

Vocabulary: Review grade 5, vocabulary on Conflict

A. Berlin Air Lift

B. Communist Bloc

C. Korea

D. Vietnam

E. National Liberation

LATIN

I. General Objectives:

a. To provide students with the opportunity to learn Latin to better understand how our own language evolved

b. To acquaint students with the culture of ancient Rome so that they might develop an awareness and appreciation of the differences and similarities between our culture and the ancient one and see how the one influenced the other

c. To develop a familiarity with the Latin quotations and mottoes which appear in our communications

d. To make the students aware of Latin words, phrases, and abbreviations which have been assimilated into English

e. To extend the verbal functioning of the students through the development of linguistic awareness which comes from the contrasting of two languages

f. To inculcate an interest in the study of the Humanities

g. To develop an awareness of the relationship between Latin and the Romance languages

h. To enhance the student's self-image by affording an opportunity to study a subject area with which he or she might not otherwise identify

i. To make the student aware of the impact of the classical heritage in specific areas such as art, architecture, government, law, medicine, religion, mythology, and literature

II. The Organization of the Course*

a. The course is divided into nine units, each of which has a theme indicated in its title. The units are divided into lessons, each designed to be a twenty minute segment

b. After a general introduction to Latin and the Romans, the course focuses on various aspects of the life of a Roman family in the early part of the first century A. D. The titles of the units are:

(1) An Introduction to Latin and the Romans
(2) Getting to Know the Members of a Roman Family
(3) The Roman Family at the Table
(4) How the Roman Family Dresses
(5) The House of the Roman Family
(6) The Toys, Pets, and Games of Marcus and Julia
(7) The Education of Marcus and Julia
(8) Entertainment of the Roman Family
(9) The Occupations and Duties of Publius and Cornelia

*Office of Curriculum and Instruction Guide, HOW THE ROMANS LIVED AND SPOKE

c. Each unit contains the following elements:

(1) Cultural background presented mainly in English
(2) Latin utterances connected with the theme of the unit
(3) Latin mottoes connected culturally or lexically to the rest of the unit
(4) English derivative work involving Latin lexical items presented in the unit
(5) A unit review

TYPING

6TH, 7TH, AND 8TH GRADES

I. 6th Grade

A. To teach paper insertion and removal

B. To demonstrate correct typing posture

C. To teach and reinforce the home keys

D. To teach the number keys and symbols

E. To develop and check the following techniques daily:

1. correct posture
2. proper use of functional parts of the typewriter
3. correct stroking

II. 7th Grade

A. The objectives for the first and second reports would be the same as those for the 6th graders if they are taking typing for the first time

B. To reinforce, whenever needed, the proper typing techniques and the proper use of functional parts of the typewriter

C. To teach simple tabulation and horizontal and vertical centering

D. To teach students to compose and type personal letters and short business letters

E. To teach students the correct way to fold business letters and insert them in an envelope, to teach them to type the return and mailing addresses on an envelope

F. To teach students to type short book reports

G. To evaluate each new lesson after sufficient reinforcement has been done

III. 8th Grade

A. To review all of the skills taught in 7th grade

B. To re-teach those skills that students seem weak in or have forgotten

C. Additional skills to be taught in 8th grade

1. two letter
2. typing carbon copies
3. typing outlines
4. re-insertion and alignment
5. making corrections
6. typing masters and mimeograph stencils

Recommendations:

1. The estimated time needed to achieve goals for:

   a. 6th grade - one year, two days a week for 2 mods per day
      or half year, 4 days a week for 2 mods per day

   b. 7th grade - one year, three days a week for 2 mods per day

   c. 8th grade - one year, three days a week for 3 mods a day

2. Every effort should be made to offer typing to the eighth graders, preferably on a voluntary basis, so that there will not be a break in continuity in case the students decide to choose business as a career when they get to senior high school. Students of this age group have a tendency to forget or become very careless with typing techniques if the skill is not continued on a regular basis. Consequently, senior high school teachers usually have to start all over again.

ART

PHILOSOPHY

The following program is geared to the teaching of art at the secondary school level which the Ada H. H. Lewis Art Department feels so aptly fits the needs of the Lewis School.

The art program should provide a creative, successful experience for each child and should also provide a structured program of exploration in a variety of media. Art is necessary for all children in order to develop:

Understanding and appreciation of beauty
Sensitivity to good taste
Ability to discern
Artistic judgment
Expression of the self
Understanding and appreciation of other cultures
Consumer value of selection
Imagination and intuitive processes

Art works toward the development of both freedom and discipline with the realization that you cannot have one without the other. We look upon the art program as being the language of vision and the thought concepts of expression. This language of vision involves application of the design elements: line, space, shape-form color and texture. The art program should endeavor to teach the student to interpret and express this language of vision in his own personal way. Art should be in the curriculum because creative potential is in each individual and needs to be developed.

Purpose: To aid in turning out the total individual

Goal: To provide a structured exploration into creative experiences and media for all students

5TH AND 6TH GRADES

Grades Five and Six art elements, principles and concepts are stressed informally. Vocabulary should be within the child's framework of reference with art terms, concepts and processes used in identifying art materials. The art principles of repetition, variety, contrast, balance, rhythm, emphasis and unity should be used to guide the effective use of the art elements: line, space, shape (form-mass), color-light, and texture.

It is suggested that the art elements and principles are not to be taught through formal lessons. The program for these grade levels should be flexible. Exposure to a variety of media and processes should be key inputs.

Areas of experience to be touched upon:

Color
Construction
Design
Modeling
Pictorial Expression
Textiles
Theater Arts
Vocabulary
Art Appreciation*

*Art Appreciation - There are no absolute rules that will guarantee picture appeal and appreciation for each individual. Art appreciation, being a very personal thing, each individual will respond to a creative work in a different way. Age, background of experience, interests, and education will affect individual response. Realizing this, art appreciation should be presented as part of each creative art unit.

7TH GRADE

Continued exposure to art elements and principles. Special emphasis on color and light - unity and variety.

Concepts of Classicism, Romanticism, and Realism touched upon and tied in with the lesson when and wherever possible but without specific stress on the isms.

Materials - a variety, with some emphasis on transparent watercolor, crayon and chalk techniques, Sculpture (Copper Repoussé), Monoprint. Subject Matter - Figure drawing, Illustration, Design-Commercial, Lettering, and Poster.

8TH GRADE

Continued exposure to art elements and principles. Special emphasis on Color, Mass, Space, Contrast, and Balance.

Concepts - Expressionism and Impressionism touched upon and tied in with the lesson when and wherever possible but without specific stress on -isms.

Materials - a variety, some emphasis on Painting, Drawing (Charcoal, Chalk), Sculpture (Soap, Plasteline) Linoleum Blockprint. Subject Matter - Still Life, Landscape (Figure), Design-Fashion (Clothing).

VISUAL COMMUNICATIONS

5TH THROUGH 8TH GRADES

5TH GRADE

I. Orientation: Shop tour. Seating. Discussion on the meaning of Visual Communications and the three areas included in this course. The students must learn the definitions of:

   A. Drafting-drawing with tools such as T-square, triangle, ruler, eraser, pencil, compass, drawing board, tape and paper.

   B. Industry-taking raw materials from nature and manufacturing them into products for the consumer.

   C. Graphic Arts-making copies of printed, written or illustrated materials using one of five basic printing processes which are:

      1. Relief-printing from a raised surface
      2. Intaglio-printing from a recessed surface
      3. Stencil-printing from a stencil
      4. Photography-printing from a flat surface
      5. Photography-printing with light

II. Students will be tested on above materials during the first half of the class period. The students will then be introduced to the drafting tools:

   A. T-square
   B. Triangles 30^{o} 45^{o}
   C. Tape
   D. Ruler
   E. Eraser
   F. Compass
   G. Drawing board
   H. Paper

III. Students will be introduced to the ruler. For the first half of the period, the students will study the inch. The remainder of the class session will be used to work on drafting exercises. All remaining sessions will be used to study the materials already given to classes.

   A. Definitions of

      1. drafting
      2. industry
      3. graphic

   B. Names and proper use of drafting tools
   C. The ruler and how to read the inch

D. The drafting sessions will include:

1. How to lay out a border and title block
2. Exercise-alphabet of lines
3. Exercise-arrowheads, circles, lettering, and numbers
4. Exercise-three-view working drawing

6TH GRADE

I. Review all work completed in 5th grade

A. Definition of Visual Communications
B. The ruler
C. Drafting tools and their uses

II. Emphasis on graphics and industry

A. Discuss industry in detail
B. Include small business and how it operates
C. Discuss stocks and shares

III. Begin printing processes. Do the following class exercises:

A. Relief printing-linoleum block printing
B. Drypoint etching
C. Marbleized paper
D. Bookbinding-make an autograph book and scrapbook

7TH GRADE

I. Review all previous work

A. Definition of Visual Communications
B. Ruler
C. Drafting tools and their uses
D. Review drafting exercise

II. Remaining class sessions will be given to the following:

A. Advanced work in mechanical drawing
B. Graphic arts printing processes

1. bookbinding
2. photography
3. marbleized paper making

C. Classes will begin to explore industry in depth

8TH GRADE

I. Review all previous work

A. Definition of Visual Communications
B. Ruler
C. Drafting tools and their uses
D. Industry-its functions, etc.

II. Form a mock company or become a part of Ada Lewis Enterprises

III. Remaining class sessions - All 8th grade students will experience advanced graphics and drafting such as:

A. Multicolor silk screen
B. Setting type

1. set name cards - print 100
2. set and print memo pads

C. Make paper plates for the offset press - print
D. Use photographic equipment

1. set up still photography
2. go outside and get live shots - develop and print

E. Isometric drawings
F. Isometric circles
G. Pictorial drawings
H. Architectural drafting

PLEASE NOTE: In all of the above areas, students will receive basic and fundamental instructions and experiences unless a student exhibits interests and abilities to merit advanced experiences and instructions.

INDUSTRIAL ARTS GOALS

Industry is an extremely important aspect of the American culture. If one is to function effectively in an industrial society, it is essential that he be informed about matters pertaining to industry. Industrial arts is that portion of general education directed toward this end.

Objectives

The following quotation, from the United States Office of Education publication, "Industrial Arts Education," OE 33038, Circular No. 791, provides an insight into what industrial arts should accomplish.

"As a curriculum area in the schools, industrial arts education provides instruction for students to learn about industry and technology and to experience the act of creating, from materials, new and different forms which have greater human value. In so doing, students will be sensitive to materials, processes, machines, tools, principles, applications, operations, opportunities for work, quality of products and service, maintenance, technical achievements, and the significance of technology and its effect on society and on the individuals within that society."

In Pennsylvania, the Department of Public Instruction has adopted the following objectives:

1. "To develop literacy in a technological civilization."
2. "To develop an insight and understanding of industry and its place in our society."
3. "To discover and develop student talents."
4. "To develop problem-solving abilities related to a variety of tools, materials, processes, and products."
5. "To develop skill in the safe use of tools and machines."

Industrial arts visual communications programs of instruction deal primarily in the field of graphic arts, photography, and drafting. We live in a society which is dominated by visual communications, so our educational programs should place more emphasis on the need to interpret visual experiences. Graphic arts provide the youth with experiences in developing and translating visual communications. Students receive increased experiences in visual expression, which provide a natural lead-in to experience in the graphics of communication. Coursework in design, photography, image assembly, photomechanical methods, reproduction, computers, electronics of communication, and other aspects are brought together in this area.

Drafting is the oldest form of communication. It has evolved from the crude design of tools, homes, maps, and other necessities to a sophisticated form of computerized drawings.

Drafting is the language of industry and of society in general. It is used to convey ideas when the draftsman has a well-founded understanding of drafting. If this understanding is demonstrated properly, his communication will be understood universally.

Selected Educational Experiences Diagrammed for Progress (SEEDS)

Industrial arts is a fundamental part of the pupils' total educational development. The goals of industrial arts education should be consistent with those of the school system. Industrial arts prepares students to live in a world of technology.

The scope of industrial arts has been too narrow in recent years in terms of the advancements of industry and technology. To reflect this age of technology, industrial arts curriculum development in Pennsylvania is being projected from a broad base that will remain constant in years to come. The content can and will change to reflect the emerging trends of industry and technology, but the broad base will remain to serve as an identifiable structure from which industrial arts can be derived.

The curriculum areas of industrial arts will be derived from or a derivation of the following base:

Visual Communications

Visual communications is the process of understanding and being understood through the sense organs of sight. It is one of the most vital forces affecting the individual's daily activities in the world of commerce, in industrial economics, and in the transmission of knowledge.

Visual communications dominate our world. By and large, the world's population, even the educated portion thereof, is illiterate in the use and application of graphic materials. People have not been taught to see in the same degree as they were taught to speak, read, write, and calculate. Most people still primarily depend upon the accident of unplanned and unstructured experiences in relation to seeing and understanding what they see. Therefore, it is of vital importance to improve perception so as to obtain a better grasp of the visual world and to interpret and communicate more effectively through the visual medium.

Our industrial arts department aims to implement these objectives by the following means:

A. Through the use of printed texts, instruction sheets and other visual materials, to develop pupil capacities for comprehensive research into the specific area, as well as to broaden basic reading skills and comprehension.

B. To develop a model industrial structure within the shops for operational activities based on current practices in industry, relating this structure to productive accomplishments for quantitative and qualitative products.

   1. Students work on a team basis in the development and completion of a product or project. Group cooperation, individual instruction and an atmosphere of exploration are essential.

   2. Students are presented with situations and projects requiring exploration and discovery on their part to accomplish a solution i.e., a process or product.

C. To develop general patterns of neatness and accuracy.

D. A flexibility in the program that permits each pupil to develop talents at his own pace, with a freedom of choice of activities in a given area.

E. To enable the pupil to make an intelligent decision in regard to his career development in general, and his curriculum choice in high school in particular.

F. Develop a broad foundation of practical and basic skills that will be an asset in any profession or vocation and that will be useful for home maintenance and hobby activities.

G. Acquire a wealth of technical knowledge.

H. Understand the influence of industry on our economic and social structure.

Recommendation

There is agreement at both the national and the state levels that industrial arts is non-vocational education which takes a broad approach to the study of industry. A laboratory atmosphere which involves manipulative and experimental activities is essential.

Processes and products of industry as a body of knowledge, rather than specific trade skills, should be emphasized. In keeping with emerging organizational patterns of industrial arts and with consideration for local needs, the program outlined in the following paragraphs is recommended for the Philadelphia Public Schools.

The middle school years, grades five through eight, should be assigned to exploration and discovery in specialized industrial arts laboratories. Attention should be directed toward developing knowledge of basic industrial materials and processes.

It is a time for establishing a foundation for proper attitudes toward work and for developing basic knowledge about industry and consumer goods. Career development and vocational guidance are particularly important. At this time, a pupil must feel success; therefore, activities must be geared to individual ability.

INDUSTRIAL MATERIALS

Each grade level shall at first receive the same subject matter as outlined. But the depth of the subject matter shall vary according to the degree of comprehension, regardless of grade level or age.

A. Machines - In this area the students will be taught how to properly operate each machine and interchange their usage.

B. Hand tools - Shall also be taught how they can be used when a machine is not available to them.

C. Measuring tools - Will give a student the opportunity to put his math into practice and to see the importance of learning all subjects and using them in different areas.

D. General shop safety rules - Inform the students of all the DO's and DON'T's and the reasons for the rules.

E. Materials - The various materials that the students will be involved with shall be used on a trial and error basis.

F. Products - This is when the student branches out and puts all that he has learned into practice, with an objective to produce a usable product.

5TH THROUGH 8TH GRADES

A. Machines

1. Band Saw
2. Drill Press
3. Table Saw
4. Scroll Saw
5. Finishing Machine
6. Vacuum Former
7. Injection Molder
8. Rotational Molder
9. Bending Machines

In learning how to operate all machines the students shall also learn all safety factors involved.

B. Hand Tools

1. Claw Hammer
2. Screwdriver
3. Coping Saw
4. Hack Saw
5. Planes
6. Clamps

C. Measuring Tools

1. Tape Measure
2. Folding Rule
3. Yard Stick
4. Try Square

D. General Safety Rules

1. Attire
2. Safety Glasses
3. Handling of Tools
4. Running of Machines

E. Materials

1. Wood
2. Metal
3. Plastic

F. Products (Problem Solving)

1. Drawing
2. Layout
3. Bill of Materials
4. Assembly
5. Finishes

Each grade level will differ in production of a usable product.

HOME ECONOMICS

AREA	GRADE 5	GRADE 6	GRADE 7	GRADE 8
FAMILY LIFE	Developing an appreciation of the role of each family member. (2 lessons)	Discovering the value of studying home-making. Learning how to contribute to happy and successful every-day living. (2 lessons)	Reviewing the values of studying home economics. (1 lesson)	Careers in home economics. (2 weeks)
HELPING WITH THE CARE OF OUR HOMES	Cooperating with other family members in sharing the care of the home. (1 lesson)			
LEARNING TO ENJOY AND CARE FOR THE CHILDREN	Developing a sense of responsibility for the safety of younger children in the family (1 lesson)		Babysitting. Understanding younger brothers and sisters. (2 lessons)	Caring for children outside the home. Responsibilities of a babysitter. (1 lesson)
SHARING IN THE HOME – CARE OF THE SICK	Recognizing the importance of good health habits as a means of preventing illness. (1 lesson)			Helping when there is illness in the home. Preparing a simple tray. (2 lessons)
FOOD FOR HEALTH, GOOD LOOKS AND FUN	Learning to choose food for good health. Developing an awareness of the importance of cleanliness in food handling. (6 lessons)	Developing efficient and safe work habits in the kitchen. Choosing nutritious snacks. Selecting food wisely in the cafeteria. (8 weeks)	Furthering the development of efficient and safe work habits in the kitchen. Packing a good lunch. Eating a good breakfast. (7 lessons)	Preparing simple lunches and suppers. Giving a party.
OUR CLOTHES MAKING, BUYING, AND CARING	Improving personal appearance. Learning to care for clothing.	Looking one's best at all times. Selecting a project and learning how to achieve good results. Introduce sewing machine. (8 weeks)	Improving one's appearance through learning to sew. Use of a commercial pattern. Learning how to buy cotton fabrics intelligently. (8 weeks)	Developing more skill in the use of the sewing machine and other equipment. Choose projects using a commercial pattern. (8 weeks)

MUSIC

The teaching of music at the Ada H. H. Lewis Middle School should stress the contribution that music can make toward the physical, intellectual, social and emotional growth of all children.

Music is a creative expression of all peoples in all cultures. We wish all children to develop to the full extent of their capacity by acquainting them with the whole world of music and by having the child experience and be aware of all or even a part of the following:

1. Singing and singers--harmony, rounds, etc.
2. Composing and composers--his own area
3. Rhythms and rhythmic movements, body and otherwise
4. Create and appreciate creators--peers, teachers, and others
5. Conductors and conducting--simple score and patterns
6. Instruments and instrumentalists--Philadelphia Orchestra
7. Talented and exceptionally talented--performers and special groups
8. The fundamental and the fun--elements of music reading, notation and symbols; experiment and explore different variations, change of key, rhythm, style
9. Them and me--cultural surroundings, self-identity relating to the home, community and school
10. Manufacturer and consumer--excite the student into participating or attending cultural programs given in and around his area or by other agencies

RHYTHM

a. Sounds of the environment-steady beat; heartbeat, hammering, marching, etc. _____

b. Music that swings in twos or threes _____

c. Music that suggests walking, running, galloping _____

d. Changes of tempo in music _____

e. Associate the two-to-one relationship between half notes and quarters _____

f. Differentiate between even and uneven rhythms _____

g. Review previous concepts concerning rhythm _____

MELODY

a. Show the shape (contour) of a melody by moving hands to show up or down _____

b. Tell if a song ends on a high or low note _____

c. Sing and play on bells tonal patterns as 3-5, 5-3-1, 1-3-5, etc. _____

d. Find mi-re-do (3-2-1) at several places in a song. Name that tune _____

e. Recognize movement by steps and leaps _____

f. Review previous concepts concerning melody _____

HARMONY

a. Play the autoharp to songs using the tonic and dominant chords, and hearing the changes _____

b. Does the class enjoy playing harmony on bells? _____

FORM

a. Can the children hear phrases? _____

b. Hear where the phrase begins and ends _____

c. Can they hear that some phrases melodically are the same, some different? _____

d. Can they hear that most phrases are of equal length, yet there can sometimes be a longer or shorter phrase injected? _____

e. Review previous concepts concerning form _____

EXPRESSION AND STYLE

a. Describe the general mood of the music they sing or hear; how does it make you feel? _____

b. Identify change in tempo, fast, slow _____

c. Identify changes in dynamics, loud, soft _____

d. Identify several string instruments by sight and sound _____

e. Instrumental accompaniment can heighten the mood _____

f. Discriminate the choice of suitable rhythm _____

g. Use body movements to portray the mood and motion of music _____

6TH GRADE

MELODY

a. Children locate do or 1 in any song _____

b. Locate the tonic chords in C, F, and G _____

c. Find familiar tonal patterns in a given song _____

d. Review previous concepts concerning melody _____

HARMONY

a. Sing or play the chord roots on the piano while the melody is played or sung _____

b. Be aware of the semiactive nature of the IV chord _____

c. Read letter names of L, LV, V7 from board or chart _____

d. Play autoharp of bells in harmony _____

e. Play L, LV, V7 chords on keyboard _____

f. Enjoy singing rounds and descants as a means of enriching harmonic concepts _____

g. Do they enjoy simple vocal chording? _____

h. Review previous concepts concerning harmony _____

RHYTHM

a. Note the time values within the bar lines _____

b. Note the various rhythmic combinations _____

c. Note the contrasting rhythmic groupings _____

d. Introduce syncopation _____

e. Review previous concepts concerning rhythm _____

EXPRESSION AND STYLE

a. Be aware of the many moods that the composer can evoke in the mind of the listener _____

b. Discuss and make a list on the board of the expressive tools used in songs _____

c. Change and/or recognize suitable accompaniments _____

d. Know usual chordal progressions _____

e. Know dynamic symbols; pp, mf, ff, mp _____

f. Review previous concepts concerning expression and style _____

FORM

a. Identify phrases which are completely different _____

b. Identify phrases that are almost alike _____

c. Understand design by like and unlike phrases:

Binary
Ternary _____

d. Hear and see phrases of longer and shorter length _____

e. Name like and unlike phrases using ABA _____

f. Music constructed in orderly sequence of pattern or design _____

g. Review previous concepts concerning form _____

7TH GRADE

RHYTHM

a. Read common rhythm patterns at sight _____

b. Understand 6/8 meter in both fast and slow tempo _____

c. Respond physically and by singing to syncopation _____

d. Respond musically to triplet figure and understand it in a metrical setting _____

e. Understand that music is usually grouped in twos, threes, fours _____

f. Review other concepts learned about rhythm _____

MELODY

a. Tell how many times a phrase occurs, mark it _____

b. Name the note numbers of a given song _____

c. Locate do of a song by ear _____

d. Locate the starting note of a song _____

e. Locate the ending note of a song _____

f. Sing major scales by numbers _____

g. Introduce syllables _____

h. Introduce scales /

i. Start on a given note, construct a major scale (noting half and whole steps) _____

j. Start on any note, write a major scale _____

k. Review other concepts learned about melody _____

HARMONY

a. Sing or play the chord roots on piano while the melody is played or sung _____

b. Awareness of the semiactive nature of the IV chord _____

c. Read the letter names of the I, IV, V chords from the board or a chart _____

d. Students play I, IV, V chords on the keyboard _____

e. Students notate the I, IV, V chords (music paper) _____

f. Do they enjoy rounds and descants? Sing them _____

g. Do they enjoy canons and simple vocal chording? _____

Sing them _____

h. Review the other grade concepts learned about harmony _____

FORM

a. Hear and see phrases _____

b. Hear and see where phrases begin and end _____

c. See and hear phrases alike and different _____

d. Name like and unlike phrases using A B A (letters) _____

e. Make the transfer from small units (phrases) to larger units (sections) _____

f. Terminology is much the same in both phrases and sections (A B A, A B C A) _____

g. Recognize a large work such as a symphony (hearing) _____

h. Review other grade concepts learned about form _____

EXPRESSION AND STYLE

a. Understand the basic materials and techniques that a composer uses (change of rhythms, syncopation, variations of the same theme, harmony, etc.) _____

b. Identify the styles of a few outstanding artists whose music they hear in concert or recordings (Stylistics vs. Temptations; Gladys Knight vs. Roberta Flack or Stevie Wonder; then recordings of Philadelphia Orchestra vs. New York Philharmonic Orchestra, etc.) _____

c. Review other grade concepts learned about expression and style _____

8TH GRADE

RHYTHM

a. Understand that music may consist of meters containing combinations of two's, three's, four's, polymeters (go into detail) _____

b. Review other concepts learned about rhythm _____

MELODY

a. Determine which of the following intervals are half steps _____

b. Which are whole steps? _____

c. Play a major scale on the bells starting on F, G, D _____

d. Determine the key for a melody, (major, minor) _____

e. Introduce minor mode (just main differences from major) _____

f. Sing or play melodies in minor mode _____

g. Play a pure minor scale on bells starting on A (ear) _____

h. Play a chromatic scale starting on C _____

i. Review other grade concepts learned about melody _____

HARMONY

a. Sing and play basic chords I, IV, V on piano and autoharp _____

b. Feeling the resolution of the dominant-seven chord and which direction it goes _____

c. Write simple 4-part harmonies (I, IV, V) _____

d. Identify chords from the piano (I, IV, V) _____

e. Relate terms of Tonic (I), sub-dominant (IV), dominant (V) _____

f. Harmonize simple melodies by ear on keyboard
i.e., "Are you Sleeping?" (2 chords), "Reach Out and Touch," "Lean on Me" (3 or more chords, write chords on the board) _____

g. Review other concepts learned about harmony _____

FORM

a. Define various large works such as symphony, concerto _____

b. Define various vocal forms such as art song, opera, oratorio, and cantata _____

c. Recognize by ear much of the music played for them _____

d. Do you have a greater appreciation of the art of music after learning about composers' construction techniques? _____

e. Review other grade concepts learned about form _____

EXPRESSION AND STYLE

a. Importance of scales contributing to the expressive qualities (major, minor, pentatonic) _____

b. Musical climax (cadences) _____

c. Smooth and detached styles (legato, staccato) _____

d. Variations in performance of a melody and accompaniment _____

e. Common marks of expression, (forte, crescendo) _____

f. Qualities of combinations of instruments and ensembles _____

g. Subtle qualities of melody, rhythm, harmony _____

h. Qualities of cadences as giving a feeling of unrest, semi-rest, or rest _____

i. Review other grade concepts learned about expression and style _____

HEALTH AND PHYSICAL EDUCATION

HEALTH EDUCATION

5TH GRADE

I. Muscular-Skeletal Systems
   a. anatomical structure
   b. function
   c. care and protection

II. Digestive-Excretory Systems
   a. structure, function, and care
   b. related aspects of nutrition

III. Circulatory System
   a. structure, function, and care
   b. associated diseases and prevention

6TH GRADE

I. Respiratory System
   a. structure, function, and care
   b. associated diseases

II. Nervous System
   a. structure, function, and care
   b. special senses
      1. sight
      2. hearing
      3. small
      4. taste
      5. touch

III. Endocrine System
   a. structure, function, and care
   b. relationship to puberty

IV. Human Growth and Development
   a. structure, function, and care of the reproductive system
   b. emotional growth

7TH GRADE

I. Overview of all systems and inter-relationships of each system
   a. structure, function, and care of all systems
   b. how each system is intricately related to each other

II. Human Growth and Development: Emotional and Social Aspects and Development

III. Communicable Diseases
   a. cause
   b. prevention
   c. cure

IV. Alcohol and Tobacco
   a. social, emotional, and psychological aspects
   b. related diseases

8TH GRADE

I. Drugs
   a. useful drugs in modern society
   b. abused drugs

II. Human Growth and Development

III. Family Living
   a. inter-personal relationships
   b. understanding and improvement

IV. Community Health
   a. what it is
   b. how it can be improved
   c. what we can do

V. Consumer Health
   a. definition of a consumer
   b. awareness, recognition, and protection from fads

ACTIVITIES	SKILLS	OUTCOME
1. Football	1. Passing a. Shuttle pass b. Forward pass 2. Kicking a. Kick-off b. Field goal kick 3. Running a. Dodging b. Following interference 4. Blocking for touch and rugby	1. Acquainting the pupils with the game. 2. Developing enough skill and interest to participate during leisure time 3. Acquiring adequate knowledge to understand and enjoy the game. 4. Aware of the positions and function of each player.
2. Soccer	1. Passing a. Using toe and inside of foot b. Passing using outside of foot while moving 2. Trapping a. Use of feet b. Use of knees 3. Running 4. Goalkeeping 5. Kicking a. Penalty kick b. Free kick c. Kick-off	1. Acquiring general knowledge of rules of game 2. Becoming familiar with the players and positions 3. Gaining enough knowledge, skill and interest to participate after and during school. 4. Developing enough knowledge about soccer in order to participate and be a spectator.
3. Hockey	1. Passing 2. Driving 3. Handling of stick 4. Goalkeeping 5. Trapping	1. Gaining enough knowledge and skill to participate and to be a spectator. 2. Acquiring the minimum amount of skill to play a game. 3. Becoming familiar with rules, players and playing field.

WINTER

ACTIVITIES	SKILLS	OUTCOME
1. Basketball	1. Dribbling 2. Passing a. Bouncing b. Chest c. Hook d. One-arm pass (left or right) 3. Shooting a. Foul b. Free hand c. Hook d. Jump pass 4. Guarding a. Zone b. Man-to-man	1. To make pupils familiar with rules and object of game. 2. To develop enough interest and skill for participation. 3. To equip the pupils with enough knowledge to appreciate the game as a spectator.
2. Apparatus	1. Mats a. Forward roll b. Backward roll c. Headstand d. Cartwheel 2. Horse a. Front vault b. Side vault to left and right c. Dismounting d. Side horse vault in saddle and rearway 3. Rings a. Parallel hang b. Inversion (turn over) c. Birds' nest 4. Ropes a. Position of feet b. Climb assigned height c. Use of hands d. Climb from sitting position 5. Chinning Bar	1. To develop a reasonable amount of poise and control of muscles. 2. To strengthen agility and suppleness. 3. To develop flexibility as well as muscle development.

WINTER CONT'D.

ACTIVITIES	SKILLS	OUTCOME
1. Volleyball	1. Serving 2. Rotation 3. Scoring 4. Striking the ball a. position of fingers b. heel of hands 5. Spiking 6. Setting-up	1. To acquaint the pupils with a knowledge of how the game is played. 2. To develop enough interest as a carry-over for after-school activity. 3. To develop the minimum amount of skill to play and enjoy the game. 4. To initiate an appreciation and enjoyment as a spectator.
2. Physical Laboratory	1. Body-conditioning a. coordination b. agility c. rhythm d. techniques of lifting	1. Improvement in general health and development of the body. 2. To improve the agility, rhythm, and muscle tone of the body. 3. A general fitness process to improve the general condition of the body.

SPRING

ACTIVITIES	SKILLS	OUTCOME
1. Square Dancing	1. Steps involving skipping, hopping, galloping, and leaping 2. Formations and patterns 3. Do-si-do 4. Promenade 5. Honor your partner 6. Chain	1. Understanding different ethnic and racial groups. 2. Acquiring understanding of time, signature, phrasing, and tempo in music. 3. To enhance the sense of rhythm.
2. Softball	1. Batting a. position of hands, arms, and feet b. follow-through 2. Catching 3. Throwing a. free throw b. pitching 4. Running 5. Fielding 6. Scoring	1. To develop an appreciation and understanding of the game of softball. 2. To provide enough skill for the pupils to play and enjoy the game. 3. To acquire enough knowledge to appreciate the game as a spectator.
3. Track	1. Running a. relays-baton passing b. individual races c. dashes 2. Jumping a. broad jump (running) b. step, step, jump c. standing broad jump d. high jump	1. Development of total body strength and organic vigor. 2. To develop a sense of individual improvement. 3. To develop a healthy individual and team competitive attitude.
4. Tennis	1. Serving 2. Backhand 3. Forehand 4. Follow-through 5. Volleying 6. Smash	1. Develop enough skill and interest to play game during leisure time. 2. To gain enough knowledge and skills to appreciate the game as a spectator.

SUMMARY

The commitment of the Ada H. H. Lewis staff to project, plan, and institute a program vital in substance and of the quality necessary to foster learning in our rapidly changing world of knowledge is herein stated. The thrust of learning and teaching is to provide many experiences for students to utilize reasoning processes toward the mastery of skills. The curriculum design provides opportunities for learning based on the carefully delineated skill tasks that must be accomplished at each level to guarantee success at the next level on providing basic learning tools, that reflect the education, professional training, experience, specific talents, and abilities of staff members.

Cooperative teamwork, support, and diligence by all members of the Lewis staff can provide the catalysts after igniting the desire for learning we expect from our students. Throughout our program, we are providing opportunities for intellectual growth, and time for wholesome adjustments and experiences for students leading to improvement in attitudes toward themselves and others.

The tenacity and skill which we use in implementing our guide will pace our progress and ultimately determine if our goals can be reached. Addenda, learning packets, and additional units will be developed and annexed to their original curriculum report as we review and revise it periodically. But, the true evaluation of this guide will be measured by the gains we make in helping children help themselves, and, if we learn and help ourselves in the process.